

The AGRICULTURAL HISTORY REVIEW



108
MAR 27 1957

Index to v. 1-5 at end
of vol.

v. 6-7 at end of
vol.

v. 8
1960

V. 5 → 7.

VOLUME V 1957

PART I

*

PRINCIPAL CONTENTS

Pollen Analysis: a technique for investigating early
agrarian history
by J. W. FRANKS

*

The Sheep-Corn Husbandry of Norfolk in the Sixteenth
and Seventeenth Centuries
by K. J. ALLISON

*

262
The Consolidation of the Crofting System
by MALCOLM GRAY

16340

3313-187-1

PUBLISHED BY

THE BRITISH AGRICULTURAL HISTORY SOCIETY

The British Agricultural History Society

PRESIDENT: SIR JAMES SCOTT WATSON, C.B.E.

TREASURER: PROFESSOR EDGAR THOMAS. SECRETARY: J. W. Y. HIGGS

EDITOR: H. P. R. FINBERG

Executive Committee: Alexander Hay (*Chairman*), Miss H. A. Beecham, Victor Bonham-Carter, Miss W. M. Dullforce, G. E. Fussell, Captain E. N. Griffith, W. G. Hoskins, G. Houston, Richard Lamb, W. Harwood Long, George Ordish, Mrs Joan Thirsk.

The Society aims at encouraging the study of the history of every aspect of the countryside by holding conferences and courses and by publishing *The Agricultural History Review*. Its constitution is printed in Vol. I of this *Review*, p. 53.

Membership is open to all who are interested in the subject and the subscription is ONE GUINEA due on 1 February in each year.

Details may be obtained from the Secretary, c/o Museum of English Rural Life,
7 Shinfield Road, Reading.

The Agricultural History Review

Editorial Board

G. E. FUSSELL

JOAN THIRSK

J. W. Y. HIGGS

R. TROW-SMITH

H. P. R. FINBERG

The Review is published twice yearly by the British Agricultural History Society and issued to all members. Single copies may be purchased from the Secretary for 12s. 6d. Articles and letters offered for publication should be sent to the Editor, 34 Sheffield Terrace, London, W.8, accompanied by a stamped addressed envelope for return if necessary. The Society does not accept responsibility for the opinions expressed by contributors, or for the accidental loss of manuscripts.

THE Agricultural History Review

Vol. v Part 1

Edited by H. P. R. FINBERG

1957

CONTENTS

Pollen Analysis: a technique for investigating early agrarian history	<i>J. W. Franks</i>	page 2
The Sheep-Corn Husbandry of Norfolk in the Sixteenth and Seventeenth Centuries	<i>K. J. Allison</i>	12
The Consolidation of the Crofting System	<i>Malcolm Gray</i>	31
The Agricultural Activities of John Wilkinson, Ironmaster	<i>W. H. Chaloner</i>	48
List of Books and Articles on Agrarian History issued since September 1955	<i>Joan Thirsk</i>	52
Reviews:		
<i>Ministers' Accounts of the Manor of Petworth, 1347-53</i> , ed. L. F. Salzman	<i>H. P. R. Finberg</i>	58
<i>In Crackling Flames</i> , by Axel Steensberg	<i>J. W. Franks</i>	58
<i>Materials for the History of Agriculture in the U.S.S.R.</i>	<i>R. E. F. Smith</i>	59
<i>Irrigation and Closer Settlement in the Shepparton District</i> , by C. S. Martin	<i>Colin Clark</i>	60
Notes on Contributors		11
Notes and Comments		11, 30, 51, 57
Letter to the Editor		61

Pollen Analysis: a technique for investigating early agrarian history

By J. W. FRANKS

THE fact that the remains of plants are preserved in deposits laid down under waterlogged conditions has been known since peat deposits have been worked; and amongst the remains so preserved are pollens. Pollen analysis is the study of the pollen content of sedimentary deposits. During the past fifty years it has developed rapidly. The technique is based on the fact that all the higher plants (trees, herbs, and ferns) release pollen and spores into the atmosphere. These pollen grains and spores, being very small, are carried about by air currents and become mixed before settling out of the air. In the process of settling they are known as the 'pollen rain', and it is one of the basic assumptions of pollen analysis that the composition of the pollen rain is proportional to the composition of the vegetation from which it is derived. This assumption is not strictly true: the forest trees do not produce equal amounts of pollen, and no satisfactory measure of the inequalities has yet been devised. Furthermore, we do not know exactly how pollens are incorporated and preserved in peats and sediments. Nevertheless, so long as these limitations are borne in mind, it is believed that pollen analysis can tell us something about the history of vegetation.

The pollen content of sedimentary deposits is investigated by applying a standard chemical treatment to digest small samples of the deposit, and mounting the resultant suspension of pollen grains on a microscope slide. The pollens are then identified and counted.¹ The results of the pollen counts are calculated as a percentage of the arboreal pollen or of the total pollen of each count. These calculations are then presented graphically as a pollen diagram (see Fig. II).

The science of pollen analysis first came into being as the result of work by the Swedish scientist von Post. In the early 1900's he produced the first percentage calculations of pollens preserved in peat deposits, thereby putting the study of past vegetation on a quantitative basis for the first time. Since von Post's pioneer work pollen-analytical studies have been used chiefly for the purpose of elucidating the history of vegetation since the last ice age, with the result that in N.W. Europe a regular pattern of development over the last 10,000 years has emerged (see Fig. I). It is against the background of this work that recent studies of man's influence on the vegetation must be

¹ Faegri and Iversen, *Textbook of Modern Pollen Analysis*, Copenhagen, 1950.

<i>Approx. Age</i>	<i>Pollen Zones</i>	<i>Name of Zone or Period</i>	<i>Type of Vegetation and Climate</i>	<i>Forest Destruction</i>
10th cent. A.D. 0	VIIB to recent	Post-atlantic	Mixed oak forest with little elm. Climate: Cool oceanic.	Oak forests cleared. Norse land-takes. Esthwaite early clear- ances, not earlier than 2000 B.C.
B.C. 3500			Elm declined. ?Climatic deterioration.	
6000	VIIA	Atlantic	Mixed oak forest, alder in the damper places. Climate: Warm oceanic.	
	VI	Boreal	Pine-hazel woods with some birch, oak, elm, and alder.	
8000	V		Climate: Warm dry.	
	IV	Pre-boreal	Birch-pine woods, with many herbs. Climate: becoming warmer.	
10000 to 13000	I, II, and III	Late-Glacial	Climate: Cold.	

FIG. I

Table of Vegetation and Climatic Type in the English Lake District.

considered.¹ So far pollen analysis has suggested the following sequence in the development of vegetation prior to man's influence.

After the last glaciation temperatures increased and birch woodland expanded rapidly. At the beginning of this period, the pre-boreal, there were many herbaceous species, but they became more abundant as it progressed. From this we may infer the development of denser woodland. In the boreal period the birch woods were invaded by pine. This points to a decrease in rainfall. The hazel became an important component of the vegetation at this time, probably forming pure hazel woods. The oak, elm, and lime began to appear, fostered by the still increasing temperatures. Soon after the appear-

¹ J. Iversen, 'Land occupation in Denmark's Stone Age', *Danm. Geol. Unders.*, II, 1941, Nr. 66, pp. 1-68; and 'The influence of prehistoric man on vegetation', *Danm. Geol. Unders.*, IV, 1949, Bd. 3, Nr. 6, pp. 1-25.

ance of the trees of the mixed oak forest, ivy appeared, showing that the climate was becoming more oceanic.¹

At the end of the boreal period a major change in the vegetation occurred. The alder, which had been present in small amounts since the pre-boreal, expanded rapidly. The amounts of birch and pine, until now the most important trees, declined sharply. This expansion of alder was almost certainly brought about by climatic change. At this time the mixed oak forest became established as an important unit of the vegetation. The period characterized by this type of vegetation is known as the atlantic.

The end of the atlantic period was marked by the decline of the elm. This was followed by a series of clearances which destroyed the mixed oak forest and produced the present vegetational landscape. That these clearances were man-made has been shown by the pioneer work of Scandinavian scientists. The initiative was taken by Iversen, whose work on early forest clearances was the first attempt to investigate the problem by pollen-analytical methods, and is still the outstanding work in this field.² Iversen demonstrated, by means of pollen analyses from several Danish sites, the temporary clearances of the atlantic mixed oak forest by axe and fire, and he worked out the details of clearance, occupation, and regeneration on these sites. He emphasized the importance of certain pollens as indicators, particularly the ivy and mistletoe. The climatic requirements of these plants are strictly defined and well known, so that their occurrence throughout the whole of the clearance period suggests that climate was not the primary factor in bringing about these changes.

Since then Iversen, together with Troels-Smith and others, has shown that it is possible to clear considerable areas of high forest using only the Neolithic wooden-hafted polished stone axe and a primitive burning technique still in use in Finland. Crops have been grown on the land so cleared.³

Iversen's work on forest clearance in Denmark has established for that country a clear picture of the course of events when the Neolithic farmers attacked the virgin forests of the atlantic period. First came the steep decline in the mixed oak forest, together with the first appearance of the narrow-leaved plantain. The depression of the mixed oak forest was followed by an expansion of birch and hazel. Immediately after the clearance fire, traces of which are found as charcoal stratified into the deposits, birch became more abundant than at any time since the pre-boreal. However, it was soon shaded

¹ D. Walker, 'Skelsmergh Tarn and Kentmere, Westmorland', *New Phytologist*, LIV, 1955, No. 2, pp. 222-54.

² J. Iversen, 'Land occupation in Denmark's Stone Age', *loc. cit.*

³ The experiment at Draved in S. Jutland. There is no published account.

out by the regenerating mixed oak forest. Hazel declined more slowly, but was nevertheless suppressed by the mixed oak forest. The great expansion of birch after the clearance fire can be explained by its efficient seed dispersal and by the extremely favourable conditions created for the germination of its seeds by the removal of the undergrowth.

The interpretation of the pollen diagrams receives confirmation from several other circumstances. First is the presence of a charcoal layer stratified in the deposits. Second is the fact that at the level of clearance the absolute frequencies of arboreal pollen fall very low and then slowly recover.¹ Finally, there is the striking evidence yielded by the non-arboreal pollen content of the deposits. Just above the charcoal layer the non-arboreal pollen increases suddenly, as would be expected from Iversen's hypothesis. But especial importance is attached to his identifications of the species contributing to this total. Firbas had previously suggested that it was possible to distinguish the pollen of cereals from that of other grasses on the basis of size;² by this method cereal pollen was identified from the deposits. Pollen of the plantains and mugwort was found in some quantity in the same deposits. Mugwort remained a serious weed in Denmark until deep ploughing became a regular practice. The occurrence of weeds in large numbers confirms Iversen's hypothesis of a community practising tillage only in the most rudimentary form.

Although the significance of Iversen's work was realized in this country, no attempt was at first made to study the effect of human influence on vegetational development in detail. References to forest clearance have appeared in British literature, but no detailed studies have been attempted. Some work was done by W. Pennington on the past vegetation of the Windermere region, the results of which were published by Pearsall and Pennington in a paper on the Ecological History of the English Lake District.³ In this paper they surveyed the archaeological background of the region, and from the evidence of the Windermere pollen diagrams deduced stages in the historical development of the vegetation. These included: the clearing of the valley alder swamps by the Norsemen; the destruction of the low-level oak woods; the great expansion of the grasses due to the above and to monastic sheep-farming; and the extension of pine. In an earlier work Pennington had proposed

¹ Absolute tree pollen frequency is calculated on the basis of the number of pollen grains per unit area of the microscope slide, samples of comparable size being used. It is of only limited value as too many uncontrollable factors are involved.

² F. Firbas, 'Der Pollenanalytische Nachweis des Getreibaus', *Zeitschrift für Botanik*, BXXXI, 1939.

³ W. H. Pearsall and W. Pennington, 'The Ecological History of the English Lake District', *Journ. Ecol.*, XXXIV, 1947, No. 1, pp. 137-47.

a time scale for the region based on rates of sedimentation.¹ When applied to the pollen diagrams this gave the age of the supposed Norse clearance as about A.D. 1400. This date applies to the height of the clearance, but the historian will be quick to point out that there is a considerable margin of error. The fact is that pollen analysis can only determine sequences in the history of vegetation; for the chronology of those sequences, additional evidence must be sought from archaeological or other techniques.

In Pennington's work only a small proportion of the non-arboreal pollens were identified, so that the evidence for the deductions made was rather slender. Nevertheless, later work has in the main supported the ideas put forward in his paper. In general, however, when British workers have used pollen analysis in connection with archaeological investigations, they have used it chiefly as a dating tool.² In the course of a general pollen-analytical investigation of the vegetational development of the Esthwaite basin in the English Lake District, I have devoted special attention to the effects of early forest clearance. During the routine investigations a well-marked clay band was seen to be associated with changes in the pollen diagram that suggested forest clearance. An analysis of the deposits was made, using as the standard count 1,000 grains of arboreal pollen (as against the usual 150), to give greater statistical accuracy. The pollen diagram (Fig. II) shows the result of this analysis. For convenience of interpretation the diagram has been zoned into six arbitrary phases, each characterized by its own type of vegetation. The sequence of changes shown by these phases can be seen to represent a double cycle of a weakening of the mixed oak forest followed by its regeneration.

These changes may be regarded as stages in the utilization of the area by man. Their interpretation rests largely on the appearance and disappearance of the plantains, and upon comparison with earlier accepted clearance diagrams.

PHASE

- I. Typical atlantic mixed oak forest.
- II. Small depression of the mixed oak forest.
- III. Regeneration of the mixed oak forest.
- IV. Major depression of the mixed oak forest and birch.
- V. Appearance of herbaceous types in large numbers.
- VI. Regeneration of the woodland with more birch than formerly.

¹ W. Pennington, 'The bottom deposits of the N. Basin of Windermere, Diatom Succession', *New Phytologist*, XLII, 1943, No. 1, pp. 1-27.

² J. G. D. Clark, *The Excavations at Star Carr*, Cambridge, 1955; H. Godwin, 'The Meare Pool region of the Somerset Levels', *Phil. Trans. Roy. Soc.*, Ser. B, CCXXXIX, 1956, No. 662, pp. 161-90; H. Godwin, 'The age and origin of the Breckland heaths', *Nature*, CLIV, 1944, p. 6.

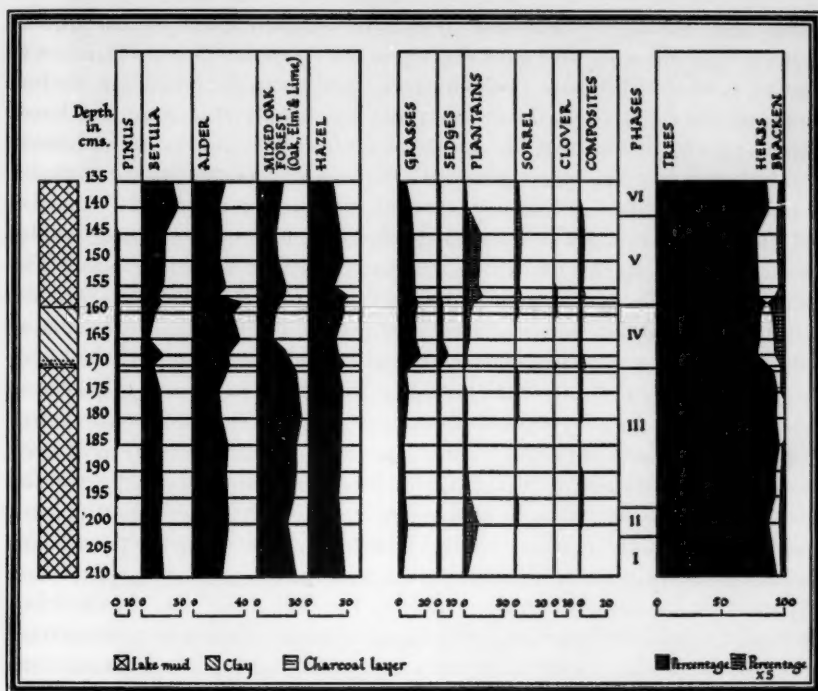


FIG. II.

The early part of the diagram (phase I) is typical of the atlantic period, in which no trace of human activity can be found. At 200 cms. there is a small depression of the mixed oak forest (phase II). This, taken in conjunction with the prolific growth of plantain, grasses, and bracken, provides some evidence of human activity; but compared with the later clearance, this appears as a very short-lived attack on the mixed oak forest, for the latter immediately returns to its former importance. The plantains, grasses, and bracken decline, and by phase III the mixed oak forest has returned. The following phases, IV, V, and VI, can be considered as representing successively the clearance, utilization, and abandonment of the area by man.

Phase IV, which begins with the decline of ash and birch, is interpreted as representing the period during which the forest was actually cleared. Later the oak was considerably reduced, and the non-arboreal components of the vegetation became of greater importance. At this time the absolute frequency of pollen fell.¹ Amongst the non-arboreal components of the vegetation, the

¹ See footnote, p. 5, on absolute pollen frequencies.

grasses and bracken predominated; the large numbers of other herbaceous types associated with the occupation phase were not represented. The delimitation of the clearance phase, judged from the pollen diagram, corresponds almost exactly with the stratigraphic horizon formed by the clay band. It seems probable that this clay band was produced by the increased erosion that followed large-scale human interference with the vegetation cover.

Phase V, the phase of occupation or utilization, began with an increase in the amount of birch, which continued throughout the phase. There was also a slight increase in oak and hazel, but the oak immediately declined. The increase in birch is explained by its superior powers of dispersal and the extremely favourable conditions for the germination of its seeds existing after the clearance fire. There is considerable evidence to support the hypothesis of such a fire. First, small particles of charcoal have been observed in the lower part of the clay layer, and secondly, occasional moss spores resembling these of *Funaria* (a species often growing on burnt areas) have been found immediately above the clay layer. The grasses declined slightly at the beginning of this period but quickly rose to a new maximum. At the same point the plantains reached their highest frequency. Sorrel rises to its maximum slightly later. The behaviour of bracken during this period is of particular interest. It can be seen from the pollen diagram that bracken decreased steadily throughout the occupation phase. This may perhaps have been due to treading by cattle. It is during this period that the greatest numbers of herbaceous types occur. They suggest that either the dense woodland earlier destroyed was being replaced by a more open type of woodland, or that extensive clearings had been made.

The final stage in this cycle (phase VI) is the regeneration of the forest. This was characterized by a further extension of birch, and to a lesser extent of oak. This part of the diagram differs considerably from Danish examples where regeneration was complete. It seems probable that the difference can be at least partly explained by the location of the Esthwaite basin in a mountain region, with the consequent leaching of soils. It may well be that at the time of the clearance the oak woods were maintaining themselves with difficulty on the upper slopes, and that the introduction of an adverse factor such as grazing had a far-reaching effect on the vegetation.¹

In the foregoing pages the changes in the vegetation reflected in the pollen diagram have been attributed to man's interference. The possibility that they were brought about by climatic influences has been rejected for the following reasons.

¹ Cf. W. H. Pearsall, 'Woodland destruction in Northern Britain', *The Naturalist*, 1934, pp. 23-8, on "zones of tension."

First, to bring about changes of the suddenness and magnitude of those shown in the pollen diagram a major climatic change would have to be postulated. Moreover, it is difficult to imagine climatic conditions which would favour alder and the even more demanding hazel at the expense of birch and oak. Such changes would of necessity affect the whole region, yet in the Esthwaite basin the elm and lime remained unaffected throughout the period. This suggests that they were growing outside the area of clearance and that we are here not dealing with a regional climatic change.

Furthermore, a forest in which alder is replacing birch is not a habitat in which high percentages of grasses, plantains, and bracken would be expected.

The remaining possibility is that some factor other than climatic was responsible for the surface on which erosion took place. When the assemblage of plants recorded is considered, the interpretation which best fits the facts is that these changes represent the product of human activity in the region, and most probably of a clearance fire, as suggested by the charcoal fragments found in the clay.

Archaeological investigations in the Lake District provide evidence for a considerable occupation of upland sites. This evidence comes largely from burial sites and stone circles, dating from late Neolithic times onwards.¹ There is also the important site of the Great Langdale Stone Axe Factory, the date of which is placed at around 1900 B.C.² The culture here appears to have remained at Neolithic level until Romano-British times and perhaps even later. It is thought that the Neolithic people of this district were cattle raisers, perhaps grazing their cattle in the upland woods, thus depressing the growth of trees and encouraging that of herbs. This type of occupation might well explain the earliest depression of the mixed oak forest (phase II). It has already been mentioned that the upland woods at this time may have been a 'zone of tension', and a factor such as grazing could well have been decisive in preventing regeneration.

It is at once apparent, however, that this is not the type of clearance characteristic of the major clearance, phase IV. The evidence shows that this belongs to a valley occupation and is a real clearance rather than an effect of grazing pressure. In this respect it is interesting to note the absence of any pollen which can with certainty be identified as cereal. The lack of cereal pollen, together with the herbaceous assemblage recorded, gives good

¹ R. G. Collingwood, 'An introduction to the prehistory of Cumb. Westm. and Lancs. N. of the sands', *Trans. Cumb. and Westm. Antiquarian and Archaeological Soc.*, N.S. xxxiii, 1933, pp. 163-200.

² C. Fell, 'The Great Langdale Stone Axe Factory', *ibid.*, N.S. L, 1951, pp. 1-14.

grounds for supposing that the clearance was made for pasture rather than for cultivation. It is noteworthy in this connection that there is no great rise in the quantity of mugwort at the end of the occupation phase such as takes place after clearances for cultivation. The virtual absence of nettle pollen strongly suggests that the clearance was made and maintained for pasture, and not for cultivation by a people permanently domiciled in the district, for pollen of this plant is only found in large quantities in diagrams from the vicinity of settlements. R. G. Collingwood points out that there is no evidence to show where the earliest settlers in the Lake District dwelt, and he therefore considers that their settlements were of a temporary nature.¹

In the absence of radio-carbon dating and specific archaeological evidence, it is difficult to ascribe the clearance to any particular period, beyond saying that it is pre-Viking, i.e. not a part of the permanent clearance, which began with the Norse land-takes in the tenth century A.D. The pattern of clearance, however, shows considerable affinities with Danish Neolithic clearances. Nevertheless, any attempt to place this diagram in the Neolithic period on the basis of comparison with Danish diagrams would be fraught with danger, for the effect of Neolithic culture on the vegetation of this country is not known. Added to this there is the fact that the density of population in Neolithic Denmark was undoubtedly much greater than in the Lake District.

The major contribution of the Esthwaite site to the picture of early forest clearance is that it provides evidence for the occupation of a valley site in the period between the initial Neolithic colonization of c. 2000 B.C. and the permanent clearance beginning c. A.D. 900.

Whilst the sketch of previous pollen-analytical work presented in this paper is by no means complete, it is hoped that sufficient of the background has been drawn in to enable the non-specialist to appreciate the value of these studies for early agrarian history. The brief account of my investigations in the Esthwaite basin is necessarily incomplete, and will appear in greater detail elsewhere. Although the site has known archaeological correlations, the results do show the potentialities of such detailed studies. How much more valuable, then, would be investigations carried out with full co-operation between botanist and archaeologist or historian. Besides working out an agreed date for early settlements, we might then attempt a detailed study of the plants associated with man, and might gain much consequent insight into farming methods and the problems which confronted early man.

¹ R. G. Collingwood, *op. cit.*

Notes and Comments

THE BRITISH AGRICULTURAL HISTORY SOCIETY

A one-day conference was held jointly with the Association of Agriculture at the London University Institute of Education on the 1st of December 1956. The chair was taken by the President, Sir James Scott Watson, and about forty people attended. Three papers were read, the first by Mr F. G. Payne of the Welsh Folk Museum on 'The Plough in Britain', the second by Miss M. E. Marston of the University of Nottingham on 'The History of Plant Propagation in England', and the third by Mr G. E. Fussell on 'Grasses and Grassland Cultivation, 1500-1900'.

THE AGRARIAN HISTORY

The project for an Agrarian History of England, announced in these pages a year ago, is gathering momentum. It is being assisted by a grant of £6,000 generously contributed by the Nuffield Foundation towards the expenses of the pilot volume. This, the first volume to be put in hand, will cover the period from approximately 1500 to 1640. It will be edited and in part written by Dr Joan Thirsk, senior research fellow in agrarian

history at University College, Leicester; and in order to help the work, a new post of research assistant has been created in the department of English Local History at the College. Miss L. M. Midgley, M.A., hitherto editor of the Victoria County History of Staffordshire, has been appointed to the post. Meanwhile sub-committees are being set up to plan the work on several other volumes.

A NEW JOURNAL OF FOLK LIFE

We welcome the arrival of *Gwerin* as a new contemporary in a closely related field. There has long been need for a journal devoted to folk life, and *Gwerin* has made its appearance at a timely moment when interest in folk-life studies is rapidly increasing. Dr Iowerth Peate, the Keeper of the Welsh Folk Museum, who edits the new journal, has striven for some years to bring it into being by gathering together support both in the British Isles and overseas, and the first issue does his efforts great credit. It is pleasingly produced and sells at the modest price of 6s. for 48 pages. It will be published twice a year.

In his editorial notes Dr Peate explains that

(continued on page 30)

NOTES ON CONTRIBUTORS

J. W. Franks, B.Sc., Ph.D., formerly a research scholar in the department of botany at University College, Leicester, is now Assistant Keeper in Palaeobotany in the department of palaeontology at the British Museum.

K. J. Allison, B.A., Ph.D., formerly Dean research scholar in the University of Leeds, has published a study of the lost villages of Norfolk, and is now continuing his research into the agrarian history of the county.

Malcolm Gray, M.A. (Aberdeen), is

lecturer in economic history at the University College of North Wales, Bangor, and author of *The Highland Economy, 1750-1850*. He has also published several articles on the subject in the *Economic History Review* and elsewhere.

W. H. Chaloner, M.A., Ph.D., is a senior lecturer in history and economics in the University of Manchester.

R. E. F. Smith is a member of the department of economics and institutions of the U.S.S.R. in the University of Birmingham.

The Sheep-Corn Husbandry of Norfolk in the Sixteenth and Seventeenth Centuries

By K. J. ALLISON

I

DURING the later seventeenth century and throughout the eighteenth, new methods of husbandry were gradually established in Norfolk. The new 'Norfolk Husbandry', developed above all in the north-west of the county, involved crops, rotations, methods of stock feeding, and conditions of land tenure which greatly improved upon earlier practices. In the eighteenth century, Townshend, Coke, L'Estrange, and Walpole were prominent in the systematic development of the new husbandry, but it should be remembered that the various individual practices were being gradually introduced by a multitude of small farmers long before the big estate owners achieved their fame. The object of this paper is to describe the older system which was to be transformed into the new 'Norfolk Husbandry' by the enclosure of open arable fields and commons.

If the Broads and Fens are excluded, an open-field, sheep-corn husbandry can be discerned over about two-thirds of the county in the later Middle Ages and the sixteenth century. The other third, distinguished on Fig. I, may appropriately be called the Wood-Pasture Region with its heavier and inherently more fertile soils. The contrast was well appreciated in the past: one seventeenth-century writer noted that the county "is compownded and sorted of soyles apte for grayne and sheepe, and of soyles apt for woode and pasture."¹ In the area of grain and sheep, with which this paper is principally concerned, the soils were light or medium in character and their sandiness made them relatively (and sometimes absolutely) infertile. Before the eighteenth-century developments in systematic marling and new crops, the sheep and their dung were indispensable for arable cultivation, and with their aid the area was famed for its barley.

As the map shows, the Sheep-Corn Region extended in an arc from south-west to north-east Norfolk. In the south-west the soils of Breckland deteriorate to shallow, wind-blown sands which are still regarded as sub-marginal for cultivation, but the sandy soils in west and north-west Norfolk were sufficiently superior for Arthur Young to christen this the "Good Sand

¹ Norwich Public Library (= N.P.L.), MS. 2641 (undated, seventeenth century).

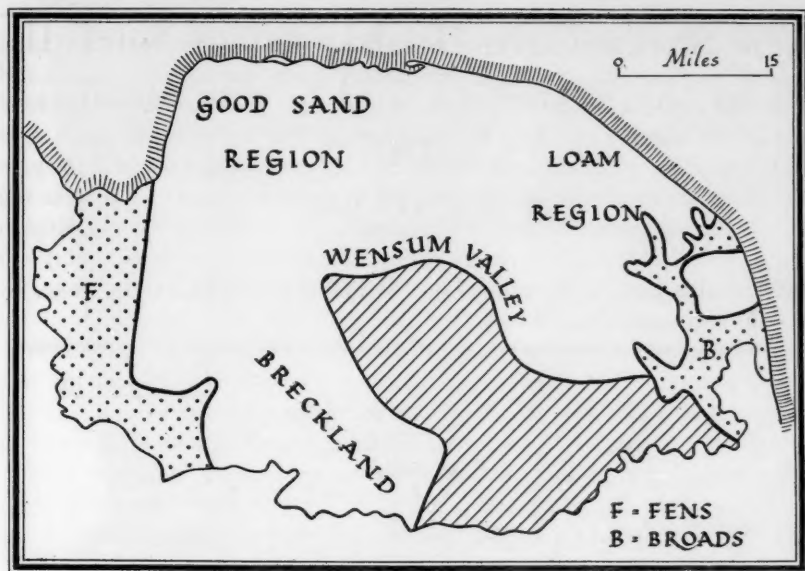


FIG. I

Extent of the Sheep-Corn Region and the Wood-Pasture Region .

Region." Yet until the improvements of the eighteenth century, Good Sand and Breckland formed one single land-use region. Three other districts lay within the Sheep-Corn Region: the sands of the morainic Holt-Cromer Ridge; the broad belt of valley sands and gravels along the Wensum Valley; and scattered patches of light and sandy soils within the Loam Region of north-east Norfolk.

The Sheep-Corn Region was a country of extensive open arable fields and equally extensive heaths and commons. Only limited enclosure of open-field land had taken place there before the seventeenth century, and both landlords and tenants enjoyed all-important common rights over the fields and heaths. With large flocks of sheep to dung, or "tathe,"¹ the light soils, the Sheep-Corn Region was renowned for its barley production, with wheat of secondary importance; the foot of the sheep did indeed turn the Norfolk

¹ Tathe—"a provincial term, conveying a compound idea, for which we have no English word. When we make use of the term fold, as applied to the fertilizing effect of sheep pent upon land, we do not mean to convey an idea merely of the foeces they leave behind them, in this case, but also of the urine, the trampling, and perhaps of the perspiration, and the warmth, communicated to the soil by the practice of folding."—Marshall, *The Rural Economy of Norfolk*, 1795, I, pp. 33-4.

sands into gold. In contrast, open fields were less extensive in the Wood-Pasture Region, where piecemeal enclosure had progressed far more rapidly; on these heavier soils of central and south-east Norfolk, heaths and commons were far less in evidence although there was more woodland here than in the Sheep-Corn Region. Both heavier and more fertile, these soils did not need intensive sheep-dunging, and although barley was still the predominant cereal, wheat was of considerably greater importance than in the Sheep-Corn Region. Finally, the conditions in the Wood-Pasture Region were far more favourable for the development of good grassland, and it was said that this part of the county was "sustained chiefly by graseinge, by Deyries and rearings of Cattell."¹

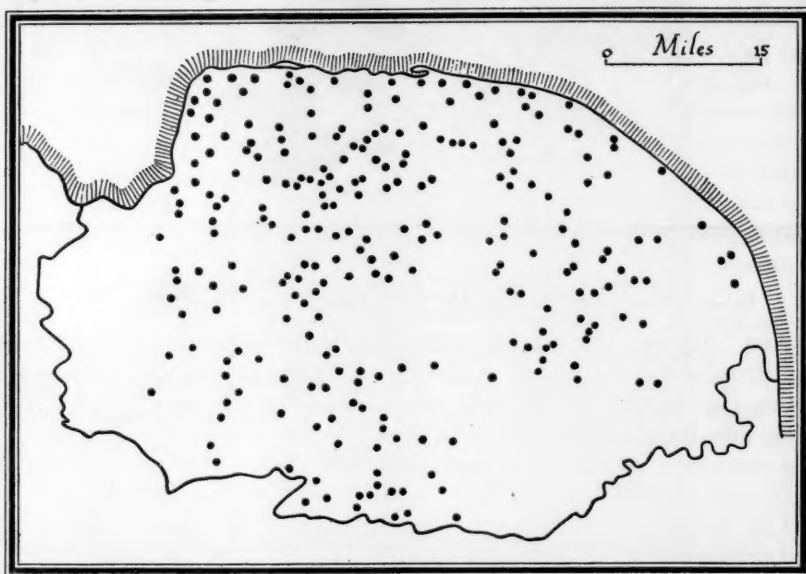


FIG. II
Distribution of Foldcourses.

The limits of the Sheep-Corn Region may be accurately established by mapping the townships for which evidence of the peculiar Norfolk sheep-corn husbandry has been found. The basis of that husbandry was the foldcourse, an institution unique to this county and to the north-west of Suffolk.²

¹ MS. printed by W. Rye (ed.), *State Papers Relating to Norfolk*, 1907, pp. 180-7.

² Some of the provisions of Statute 25 Henry VIII, c. 13, applied to foldcourse owners in both Norfolk and Suffolk. See also J. Spratt, 'Agrarian Conditions in Norfolk and Suffolk, 1600-1650', M.A. thesis, University of London, 1935, pp. 199-200, unpublished.

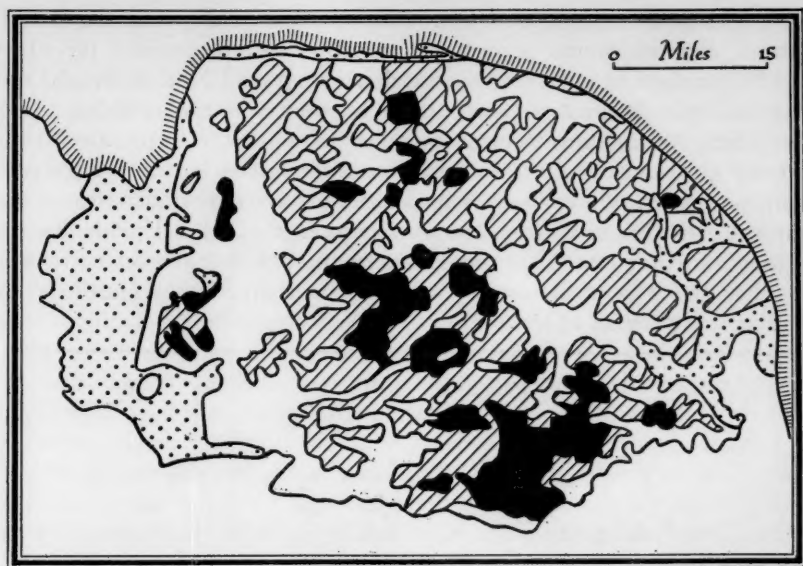


FIG. III

Soil Types: Alluvium, Light, Medium, Heavy.

Fig. II shows the distribution of some 250 townships in which the fold-course system is known to have been used.¹ Comparison with Fig. III shows how close is the correlation between the sheep-corn husbandry and the light and medium soils of the county.

II

Norfolk sheep farming was predominantly the concern of the manorial lord or his lessee. The demesne flocks did not, however, feed solely on demesne land but ranged over the open-field holdings of the lord's tenants. Norfolk villages rarely contained a single manor,² and the open fields and heathland of a village were divided between the flocks of two or more manorial lords: the area allotted to each was called a foldcourse. In the words of certain "poor inhabitants" of Norfolk, "within euery Towne and vyllage

¹ References from a variety of manuscript and printed sources, detailed in K. J. Allison, 'The Wool Supply and the Worsted Cloth Industry in Norfolk in the Sixteenth and Seventeenth Centuries', Ph.D. thesis, University of Leeds, 1955, Appendix I, unpublished.

² Even in 1600, after much consolidation of manors had taken place, 30.3 per cent of 637 Norfolk villages contained more than one manor.—Spratt, *thesis cit.*, p. 20.

is most comonly one ij or iij manors or more and to eury manor a Shepps Course or fouldcourse belongyng."¹

The inclusion of both open-field and heathland within a foldcourse was essential if the flock was to have pasturage available for the whole year. The sheep fed over all the unsown arable land (which they shared with the tenants' great cattle),² but although this was extensive in autumn and winter after the harvest, it was severely limited during the summer months. Consequently, the most important summer pasturage was that provided by the heaths and commons. The importance of the two types of feed was well expressed by Thomas Russell, lord of the manor of North Hall in West Rudham: "Whereas a great part of Norfolk is champion consisting of open fields where the lands of several men lie intermixed, and whereas the commodity and wealth of that part of the county comes chiefly from foldcourses of sheep and corn; the foldcourses being mostly on arable land lying fallow and unsown for certain terms and at certain times for sheep pasture, whereby the land gives greater yeild;" and speaking of his own foldcourse, Russell added "these sheep have always been depastured and fed yearly and at all times of the year on pasture, bruery, and heaths in W. Rudham called the Somer pasture of the said foldcourse."³

Provision was made in all foldcourses for summer and winter pasturage, but in some cases there was variation from the simple formula of heathland and open-field arable land. Foldcourses frequently included closes, both arable and pasture, whose owners were obliged to provide gaps for the sheep to enter at the appropriate seasons. Three of the foldcourses at North Creake, shown on Fig. V,⁴ included closes which were definitely used by the sheep: two of the closes, for example, were "parcell of Shammer foldcourse" and "parcell of Shammer shackle" (the latter was the word used to describe feed on the harvest fields). It will be seen later that the progressive piecemeal enclosure of open-field land during the seventeenth century endangered the foldcourse system, whose existence depended essentially on rights of commonage for sheep over the unsown fields; but ancient closes had fitted easily into the system. The writer of a seventeenth-century treatise on foldcourses⁵ insisted that all land within a foldcourse should be subject to feeding by the lord's sheep: if they did not feed in a tenant's close, then the lord had released it, or taken some composition for it, or the close had never "anciently" been

¹ Public Record Office (=P.R.O.), E 163:16:14 (*temp.* Elizabeth I). See *infra*, pp. 22-5.

² Great cattle were the larger pasture beasts, principally horses, cows, and bullocks.

³ P.R.O., C 2:R 6: 61 (*temp.* Elizabeth I).

⁴ N.P.L., NRS 3503 (undated, early seventeenth century).

⁵ British Museum (=B.M.), Add. MS. 27,403 (undated, seventeenth century).

part of the foldcourse. Some foldcourses also included meadow land, which provided sheep feed after hay had been mown; and in other cases the summer pasture was provided, not by heathland, but by fens and salt marshes.¹ Two of the foldcourses at Holkham, shown on Fig. IV,² included large areas of salt marsh, and this was true of all the villages along the north Norfolk coast.

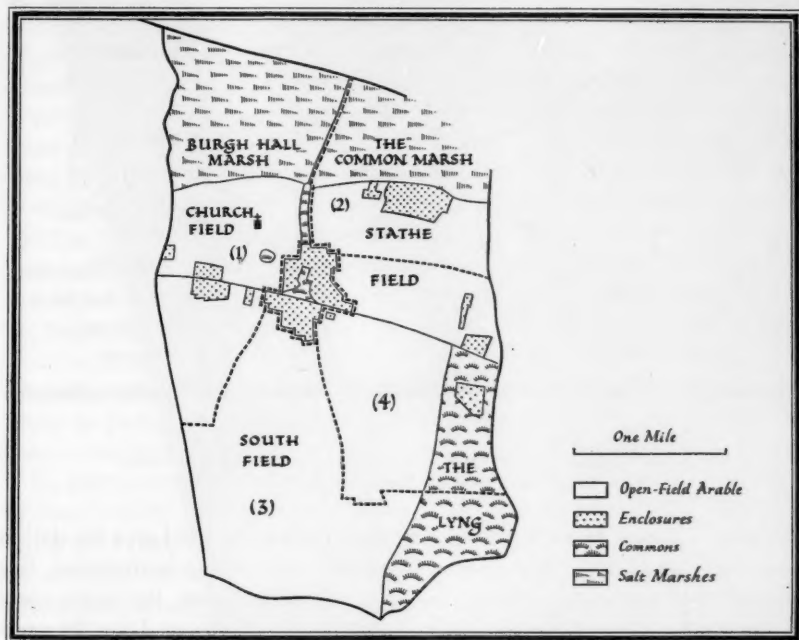


FIG. IV

Holkham 1590. Boundaries of the four Foldcourses shown thus:-----.

Foldcourse boundaries and the extent of land subject to feeding by the flocks were always rigidly fixed. In special circumstances additional pasture could be provided: at Sculthorpe, for example, Thomas Fermor had the right to feed his flocks over 50 acres of ground during the winter months "in

¹ E.g., at Feltwell, on the Fenland border, a foldcourse included open-field arable land, heathland, meadows, and fens.—N.P.L., NRS 10030 (1539-40).

² Holkham MSS., Map 1 (1590). I am indebted to the earl of Leicester for permission to consult the documents at Holkham and to publish this map, and to his librarian, Dr W. O. Hassall, for his assistance.

the time of froste and snowe and not other wyse."¹ Since foldcourses were fixed in area, an equally strict customary limit was placed on the size of flocks which could be maintained. While most foldcourses carried a few hundred sheep, some were sufficiently large for flocks of over 2,000 head.

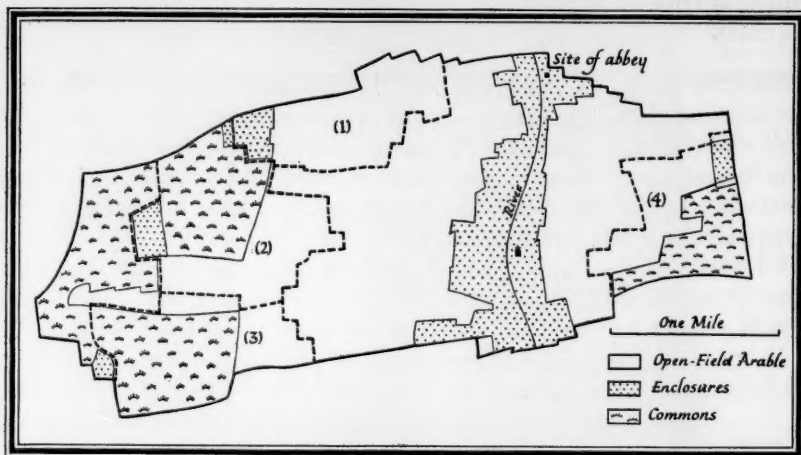


FIG. V

North Creake. Early seventeenth-century boundaries of the four
Foldcourses shown thus: - - - - -.

In some villages, like West Lexham,² the entire open-field area lay within the bounds of a single foldcourse; in others, foldcourse boundaries, like manorial land ownership, transgressed parish boundaries. But since most villages contained a number of manors, it was far more usual for the open arable fields to be divided between a number of foldcourses. In many cases, the foldcourses between them occupied the whole of the arable fields: as Fig. IV shows, this was so at Holkham, where Church, Stathe, and South Fields lay within the four foldcourses. Fig. V illustrates the opposite situation: the four foldcourses there covered only part of the fields, the remainder being enjoyed solely by the tenants' great cattle during the appropriate seasons. The extent of summer feed provided by heathland was equally variable. In some villages, the heathland was used jointly by lord's flock and tenants' cattle: the Lyng at Holkham (Fig. IV) was used all the year round by the sheep of two foldcourses and by the tenants' "horse, neate, and

¹ N.P.L., NRS 14327 (1584-5).

² Holkham MSS., Map 5: 87A (1575).

swyne."¹ In other cases, the summer pasture was divided between flocks and cattle, and in others again it was used by the flocks in winter and by the tenants' stock in summer: it was during the summer that tenants relied most heavily on heathland pasture, for their stock had ample feed during the winter on the harvest fields.

III

It was in the feeding of flocks over the open arable fields that the fold-course system demanded the closest co-operation between flock-owner and tenant landholders. Although the sheep took most of their summer feed from heaths and commons, they were, throughout the year, moved over those parts of the open fields which were unsown. After harvest, extensive areas of stubble were available, both for the flocks and the tenants' great cattle; this feed was known as shack, and all tenants had a right of shackle. Feed on the harvest fields was called Michaelmas shack to distinguish it from Lammas shack on meadow land from which hay had been mown.² The shack period on the fields normally lasted for six months, from Michaelmas (29 September) to the Feast of the Annunciation (25 March); but there were local variations, and it might be affected by unseasonable weather or by the crop. Since the shack fields were extensive, there was no need for the lord's sheep to be separated from tenants' animals and penned within folds: "all mens cattell go then promiscuously."³

In addition to winter shackle, the arable land also provided sheep feed "when it lyeth somerley in the somer tyme."⁴ Much smaller areas of the fields were lying unsown at this season and it was necessary to fold the sheep on the fallow strips: "A fouldre is ye least butt most eminent parte (of the whole foldcourse), a small enclosure made with Hyrdells to shutt ye sheep in eyther for Tathing or other wyse ordering of them."⁵ Even when the summer fallow had been ploughed for winter corn, it was still available for pasturage until the seed was sown; but during this short intermediate period, the foldcourse owner was obliged to fold his sheep on his own strips only and tenants were allowed to tether their great cattle only upon their own holdings.⁶ After winter corn had been sown, of course, those strips were denied to sheep and cattle feeding on the Michaelmas shack.

¹ Holkham MSS., uncatalogued, quoted by H. L. Gray, *English Field Systems*, 1915, pp. 328-9.

² B.M., Add. MS. 27,403 (undated, seventeenth century). ³ *Ibid.*

⁴ P.R.O., E 315: 201: 55-9 and 65-173 (1625 and 1596), quoted by Spratt, *thesis cit.*, p. 245. Also used as sheep feed were 'ollands', parcels of land lying unsown for more than one year.

⁵ B.M., Add. MS. 27,403 (undated, seventeenth century).

⁶ P.R.O., Star Chamber 2: 8: 158 (*temp.* Henry VIII).

Close co-operation between landlord and tenants was essential: it was important that the winter shackle should not be fragmented by scattered strips of winter corn, and that summer fallow strips should not be widely dispersed in the sea of spring corn. In fact, customary regulations were observed by tenants to ensure that fallow and sown land should be as compact as possible, and that winter and spring corn were kept separate. To this end, certain areas of the arable fields were set aside for sowing each year: the fields were divided into 'shifts'. According to Thomas Russell, the lord of North Hall in West Rudham, "The custom and usage there is and time out of mind of man has been that lands lying in the fields of W. Rudham have been divided into several shifts or parts of which some have been used yearly and every year and in course have been sown with corn, and some yearly left fallow."¹ At Docking, too, the farmers of the lord's foldcourse had right of shackle in East Field and other field ground in which the sown land lay each year in a 'shyft'.²

The tenants' ability to comply with these regulations was increased by the lay-out of strips in the Norfolk open-field system. Since the rotation of spring corn, winter corn, and fallow was not based on fields or furlongs, it was not necessary for a man's strips to be equally distributed between the different parts of the open-field area of a village. (In Norfolk, it was more usual for the open-field area to be divided into 'precincts' than into 'fields'.) The strips of a tenant's holding were consequently not widely dispersed but were situated relatively compactly in one sector of the fields. When that sector lay within a sown shift, the tenant sowed his land accordingly; when it lay within a fallow shift, he refrained from doing so. The owners of foldcourses normally gave a tenant compensation for obliging him to leave his strips fallow during any one year, compensation taking the form of demesne land offered in exchange, a temporary reduction in rent, or an increased number of animals which the tenants might put into the lords' flocks.³ But the tenants, in some townships at least, were obliged to make an annual payment for each acre that benefited from tathing by the lords' flocks.

In the previous paragraph, mention was made of one other important aspect of the co-operation between flock-owner and tenants. Many tenants

¹ P.R.O., C 2: R 6: 61 (*temp.* Elizabeth I).

² P.R.O., C 2: H 11: 45 (1591).

³ B.M., Add. MS. 27,403 (undated, seventeenth century). E.g. at Sedgeford, "where it falls out in Course that any of the Coppiehold or ffreehold lands are to ly lay for the purpose aforesaid (shackle) the lord allowes to the Tenants in exchang recompense for the same a like quantity of his Demeane arrable lands."—L'Estrange MSS., Box IC (eighteenth century). At Hindringham, certain tenants were obliged to give up their lands lying in the summer pasture of a foldcourse—they were given compensation of either other land in exchange or 8d. per acre involved.—P.R.O., DL 3: 49 (1541-2).

possessed a 'cullet right' which enabled them to keep a few sheep in the lords' flocks. In most townships of the Sheep-Corn Region, therefore, tenants had three sources of feed for their animals: their great cattle were turned on to the shackle of the harvest fields, their great cattle and sheep fed on the heathland commons, and a small number of sheep was put into the demesne flock. Cullet rights assumed even greater importance in those townships where tenants had no other means of feeding their sheep. This was the case at Holkham: the tenants' horses, cattle, and pigs shared with the lord's flock both the heathland and the shack fields of which Caldowe foldcourse was comprised, but neither heathland nor shack fields were available for tenants' sheep.¹ These tenants did, however, have cullet rights, and in 1559, for example, Caldowe flock was made up of 725 of the lord's sheep and 150 belonging to 10 tenants.²

The numbers of sheep put into a flock by individual tenants were determined by the amount of land which they owned in the open fields. "By the custom of the said county any man that have any land lying in any open field (except such as has liberty of foldcourse and foldage) ought to shack there with his cattle according to the proportion of his land lying in the said field;" and this cullet right "is to have a number of sheep certain appurtenant to some tenement as a hundred or two hundred sheep going and feeding after or with the lords flock."³ The number of cullet sheep reached several hundreds in the larger flocks.

Cullet sheep were tended throughout the year by the lord's shepherd, but tenants took both the increase of lambs and the wool clip. If any cullet sheep died or were sold, others could be put into the flock to replace them, but the number was never to exceed that allotted to each tenant and in the summer any excess resulting from the birth of lambs was to be removed. Tenants were obliged to wash, clip, and brand their own sheep, and they made a small payment to their landlord for the privilege of putting each animal into the flock. In some cases, however, cullet rights were restricted to the freeholders in a village and no payment was exacted from them; a similar allowance was usually made to shepherds and was their most valuable perquisite of office.⁴

¹ Holkham MSS., uncatalogued, quoted by Gray, *op. cit.*, pp. 328-9.

² Holkham MSS., Holkham Deeds, 10:318.

³ P.R.O., Star Chamber 3:3:42 (*temp.* Edward VI).

⁴ The sheep accounts of flock-owners give details of such payments and allowances; these accounts are examined in Allison, *thesis cit.*, pp. 187-306.

IV

When co-operation between landlord and tenant was forthcoming, the foldcourse system was mutually beneficial, but there was a potential divergence of interest between them as flock-owner and corn-grower. The ill effects of that divergence were keenly felt during the sixteenth century when many landlords were giving increased attention to their sheep farming. Often they farmed out their demesne land but retained their foldcourses, and widespread landlord abuse of the foldcourse system goes far towards explaining the peasants' antipathy towards its regulations, and their increasing resistance to its maintenance in the seventeenth century.

The Norfolk rebellion of 1549 was largely inspired by social and agrarian grievances; thirteen of Ket's twenty-seven complaints related directly to the agrarian situation, and two aimed at limiting the number of sheep owned by landlords. It was, in Professor Bindoff's words, "a radical programme, indeed, which would have clipped the wings of rural capitalism."¹ But the rebels were routed near Norwich and Ket was hanged; this was merely an interlude in the story of oppression that was intensified in the second half of the century. The forms which that abuse was taking are clearly indicated in a petition submitted to Queen Elizabeth by certain "poor inhabitants of Norfolk"²—and their complaints centred around the gentlemen's abuse of the foldcourse system.

Customary regulations required flock-owners to fulfil a number of obligations to tenants who possessed land in their foldcourses. But as the poor inhabitants alleged, and as abundant evidence confirms, they frequently failed to do so. They made no allowance to tenants for the use of unsown land; they lengthened the shack period;³ and they fed their flocks over winter corn sown by tenants.⁴ The petitioners claimed, moreover, that their own cattle could not be fed in the fields, "the Shak ons defyled and oueronne ons with sheppe," and they asked for the shack period to be limited to the three months between 1 November and 2 February. Even more damaging to tenants' rights was the diminution of shackle by landlords. Both lord's flock and tenants' cattle shared the shackle of demesne and tenants' land alike; but landlords frequently enclosed their demesne strips

¹ *Ket's Rebellion, 1549*, Historical Association, 1949, p. 9.

² P.R.O., E 163:16:14 (*temp.* Elizabeth I).

³ E.g. at Fakenham in 1520, until 3 May.—P.R.O., Star Chamber 2:15:11-13.

⁴ E.g., the inhabitants of Alethorpe alleged that the lord of the manor "breaketh up other mens seuerall grownde for the more freer passage and ease of his sheepe, and as it is well to be proved, even att this tyme doth drive over their new sowne winter corne and into their home yards and Orchards, eatinge spoylinge and breaking downe their new sett grists and plants." MS. printed in *Norfolk Archaeology*, x, 1888, pp. 150-1.

in the open fields, enjoyed the sole right of shackle on the enclosed strips, and yet put an undiminished flock on to the remaining stubbles.¹ In some cases, such enclosure of demesne land in the open fields caused flocks to be depastured for a prolonged period on the heathland sector of the foldcourse, to the detriment of tenants' common rights there.² Demesne enclosures, like those made by tenants, should have been laid open to tenants' cattle as well as to the flock during the appropriate seasons.³ Other landlords fed a larger flock on the fields than the feed would support, extended foldcourses to land that did not customarily lie within their bounds, and even set up completely new foldcourses.⁴

A great wealth of evidence suggests that abuse of tenants' rights of commonage on heathland and waste ground was even more widespread. Flock-owners commonly overstocked the commons with larger flocks than their foldcourses customarily carried, and they used commons which, in the poor inhabitants' words, "ought to be noo parcell of eny ffolde course." With summer heathland pasture 'surcharged' by enlarged flocks, tenants were losing commonage when they most needed it, and a frequent demand was that lords should respect their tenants' sole right to use certain areas of heathland during the summer: the period suggested by the poor inhabitants was from 2 February to 1 September. In many cases, the overstocking of commons did not satisfy the gentlemen's "unlawfull desyres of suche thyngs as be not ther owen," and many heaths were enclosed for the sole benefit of their flocks.⁵

Flocks were increased in number and size by one other means: the denial of tenants' cullet rights. The poor inhabitants complained that they could keep scarcely any sheep in the foldcourses, "neyther ffor the lands that they

¹ At Alethorpe again, it was alleged against the lord that "whereas many of his growndes lay open heretofore, for the maintenance of his fold course, he hath now inclosed the moste parte of them and keepeth them several to himself all the yeare and yett notwithstanding doth mantayne his full number of sheepe as ever he did before."—*ibid.*

² E.g., at Woodbastwick, open demesne land was enclosed, with the result that the sheep fed to a far greater extent on Mousehold Heath.—P.R.O., E 178: 7153 (1588-9).

³ "One who hath purchased divers parcells together, in which the inhabitants have used to have shackle, and long time since have enclosed it, and notwithstanding allwayes after harvest the inhabitants have had shack there by passing into it by bars or gates with their cattell there, it shall be taken as common appendent or appurtenent and the owner cannot exclude them of common there, notwithstanding that he will not common with them, but hold his owne lands so inclosed."—Le Neve's MS. Collections, fo. 67d, printed by W. Rye, *Materials for the History of the Hundred of North Erpingham*, 1883, I, p. 28.

⁴ E.g., at Hunworth: B.M., Add. MS. 39,221 (1611); at Kilverstone: P.R.O., E 134: 35 Elizabeth/Easter 24 (1592); and at Great Dunham: P.R.O., Requests 2: 252: 20 (1551).

⁵ E.g., this was yet another complaint made by the inhabitants of Alethorpe.

haue in the seyd Townes or vyllages, althowe the seyd Sheppe do ffede or pasture the halffe yere and more upon the same Tenants londs, nor yet for ther money." Evidence from other sources again supports their allegations.¹ Cullet rights were often limited to the freeholders in a village, but the petitioners wanted the privilege to be universally extended to other tenancies, too; and they demanded that cullet sheep should be allowed in respect of tenants' land lying in the foldcourses without any money payment.

By abusing the foldcourse system, landlords were able to enlarge their flocks without recourse to the large-scale enclosure and conversion of open-field arable land to pasture that took place in certain parts of England. Small-scale enclosure and conversion was, however, frequent as a corollary of the forms of oppression peculiar to Norfolk: the enclosure commissioners of 1517 reported nearly 10,500 acres allegedly enclosed in Norfolk, but the majority of the individual enclosures were of small extent.² Moreover, fewer than 8,700 of those acres were converted from tillage to pasture. Some of the enclosures remained in arable cultivation, but they involved the removal of open-field demesne land into severalty and the extinction of tenants' rights of shackle; others involved the surrender of tenants' rights of commonage on pasture land enclosed.³

Enclosure and conversion alone were rarely so extensive in Norfolk as to cause village depopulation of the Midland type;⁴ but the Norfolk landlords' manifold abuses of the foldcourse system often achieved that result by a more gradual process. Those abuses were frequently accompanied by the acquisition of houses, landholdings, and commons; large estates were built up, and villages were depopulated. There is a considerable body of evidence to support the poor petitioners' allegations: their petition would have been readily signed by the inhabitants of the lost village of Alethorpe, whose landlord had driven his sheep into their corn, home-yards, and orchards, deprived them of their shackle, and surcharged and enclosed their common;⁵ they would have been supported by the people of Sturston, evicted

¹ E.g., at Taverham, the foldcourse owner removed cullet sheep from the flock and sold them; one tenant was denied his right to keep fifty sheep in the flock in respect of nineteen acres which he owned in the foldcourse.—P.R.O., C 1: 1219: 16-19 (1544-53).

² The returns of this Commission of Enquiry are analysed by I. S. Leadam, 'The Inquisition of 1517, Inclosures and Evictions', *Transactions of the Royal Historical Society*, New Series, VII, 1893, pp. 134-218. The returns covered all but two hundreds of the county.

³ These two types of enclosure accounted for 1,485 and 277 acres respectively, out of the total of 10,454 acres.

⁴ The Commissioners reported that the hamlet of Holt had been depopulated by the enclosure and conversion of arable land to sheep pasture; the extensive enclosure and conversion which they found at Choseley probably accounts for the depopulation of that village.

⁵ *Supra*, p. 22, n. 4, p. 23, n. 1, 5.

by a landlord who had appropriated their land and commons, pulled down their houses with the exception of three which he converted into malting, brewing, and dairy houses, taken over the glebelands, and added the glebe foldcourse to his own two courses;¹ they would have been joined by evicted tenants in the lost village of Narford,² and by the tenants of the notorious Thomas Thursby and his son, who had converted their holdings to sheep pasture, evicted them from their dwellings, deprived them of their commons, and pulled down their houses in numerous villages, including four that are now deserted.³

Although landlord oppression caused the complete depopulation of a number of villages and the shrinkage of many others, little extension of permanent sheep pasture was involved and the foldcourse system was not discarded. In the conditions of the Sheep-Corn Region, even the depopulating landlord maintained the sheep-corn husbandry, although every acre in the foldcourse and every sheep in the flock was now his own. The village of Pudding Norton had been depopulated in the sixteenth century, but when the lord of the manor died in 1617, his wealth did not lie solely in his sheep: the flock feeding in Pudding Norton was valued at £240, and the crops grown there at £334.⁴ Although many of them were anxious to exclude their tenants from participation in the sheep-corn husbandry, it was not the landlords who, as early as the sixteenth century, expressed dissatisfaction with the foldcourse system.

V

During the sixteenth century, many landlords and flock-owners found it increasingly difficult to secure the essential co-operation of their tenants: the normal restrictions of the foldcourse husbandry were becoming more and more irksome to tenants who were in danger of losing their share of the benefits of the system. Individual tenants were failing in two ways to fulfil their obligations: they were sowing their corn on parcels of land dispersed throughout the open fields, contrary to the shift system, and they were en-

¹ P.R.O., E 123: 23 (1597), E 134: 38-9 Elizabeth/Michaelmas 9 (1597), E 123: 26 (1597), E 207: 33: 3 (1598).

² P.R.O., E 134: 21-2 Elizabeth/Michaelmas 31 (1578-9).

³ Report of the 1517 Commission of Enquiry, see Leadam, *op. cit.*, p. 153; P.R.O., C 2: W 15: 61 (1522), Star Chamber 2: 15: 76-7 (1534), Star Chamber 3: 6: 13 (1540), Requests 2: 18: 114 (1548), Requests 2: 138: 49 (1587), Star Chamber 8: 182: 23 (1616). For village depopulation, see K. J. Allison, 'The Lost Villages of Norfolk', *Norfolk Archaeology*, xxxi, 1955, pp. 116-62.

⁴ Testamentary inventory of William Reynold; Bishop's Chapel, Norwich, inventories, Johnson 147.

closing their open-field strips to exclude the lords' flocks from summerley and shackle.

Thomas Russell of West Rudham declared that with the observance of the shift system by his tenants, "the sheep of the said foldcourse can more conveniently feed and shack;" but he complained that two of his tenants had disregarded the shifts by sowing dispersed and contiguous strips, sowing spring and winter corn on adjacent strips, enclosing several parcels of their land, and sowing strips that lay within the shift set apart for summer fallowing.¹ Similarly at Docking in 1591, the shift for winter corn consisted of about 100 acres in East Field, leaving about 1,000 acres unsown for shackle; but two tenants had sown strips outside the shift.² And again, at Holkham, three men sowed several strips dispersed in South Field with "sundry kinds of corn," thus "incompassing some parts of the said foldcourse circlewise with one or two ridges of corn."³ In such cases as these, sheep were denied access to part of the unsown fields and were deprived of feed on the strips which had been illegally sown.

Similar results followed the enclosure of tenants' open-field strips: not only did the flock lose its feed over the enclosed parcels, but its free passage over the fields was obstructed. If such piecemeal enclosure was carried out on a large scale, foldcourses were threatened with complete disruption. In 1592 the lord of Beck Hall in Foxley listed the "Lands Inclosed within the shackle of ffoxley," which had been "always before fed with ffoxley flocke in shack time;" he showed that nineteen tenants had enclosed twenty-one parcels of land totalling $70\frac{1}{4}$ acres, and that the closes prevented the flock from reaching a further $14\frac{1}{2}$ acres of the fields.⁴ Tenants were at first obliged to lay open such obstructive closes, but as piecemeal enclosure became more widespread, many landlords were persuaded to tolerate the closes, provided that gaps were made for sheep to enter when the land was unsown, especially in shack time. Already at Great Bittering in 1533-4, for example, a landlord upheld his right to feed his flock over the shack fields, and tenants who had made enclosures during the previous twenty years were ordered, not to remove their fences, but simply to open their closes at shack time.⁵ By tolerating these 'half-year closes', landlords had admitted the thin end of a wedge that was to be firmly driven home during the seventeenth century.

In 1627 a Privy Council order was necessary to force tenants to observe the customary regulations at Anmer, and the justices foresaw the ultimate

¹ P.R.O., C 2:R6:61 (*temp.* Elizabeth I).

² P.R.O., C 2:H 11:45; *supra*, p. 20.

³ P.R.O., C 2:R4:18 (*temp.* Elizabeth I).

⁴ Holkham MSS., Billingford and Bintree Deeds 12:846.

⁵ Carthew, *The Hundred of Launditch*, 1878, II, p. 560.

breakdown of the foldcourse system if such difficulties increased. "This Court was now of opinion that the plowing and sowing of small quantities of land dispersedlye or disorderlye within ye shacks and winter feedinge of ye said ffoldcourses, and the refusal of a few wilfull persons to lett ye owners of ffoldcourses have their quillets of land (Llying intermixt in the places where ye sheep pasture is layd) upon indifferent exchange or other recompense for the same, are things very mischievous and will tend to ye overthrow of very many fold courses."¹

Half-year closes, sometimes called half-year or shack lands, were increasingly tolerated during the seventeenth century; and half-year lands were gradually converted to whole-year lands, upon which the flocks were no longer entitled to feed. At Kenninghall in 1610, for example, the tenants purchased their lands lying in the foldcourse in order to make them whole-year lands.² By such agreements, tenants lost the benefit of tathing, but they gained freedom from common-field and foldcourse restrictions and were enabled to introduce improved methods of cultivation.

The most noticeable of such improvements was the introduction of turnips as a field crop.³ The cultivation of autumn-sown turnips was incompatible with the foldcourse system, for land no longer lay unsown for winter shackle, and piecemeal enclosure often went hand in hand with the introduction of turnips. Nevertheless, many landlords fought hard to maintain their flocks. At Shropham in 1681, for example, a tenant was summoned to appear in the manorial court after he had harvested a rye crop only to sow the land immediately with turnips, and when similar trouble was encountered there in 1696, the owner of the flock was instructed to "turne in his sheep and eat vp the Turnips" if the offender gave no satisfaction.⁴ Even when landlords were forced to accept turnip cultivation by tenants, they often attempted to reconcile it with the foldcourse system. The farmer of a

¹ Privy Council Orders, 1627, printed in W. Rye, *State Papers Relating to Norfolk*, pp. 70-1.

² Blomefield, *op. cit.*, I, p. 220.

³ The field cultivation of turnips in Norfolk began in the first half of the seventeenth century and was well established by the latter half of the century. Early references to both turnips and carrots in Norfolk concern their growth as garden crops in closes outside the city of Norwich by Dutch immigrants after 1565: P.R.O., SP 12:20:49 (1575); Norwich Corporation Muniment Room (N.C.M.R.), Court Books (C.B.) 13:110 (1596), 190 (1598), 15:506d (1623), 16:455, 457 (1633), for example. Turnip cultivation was not, of course, limited to the Sheep-Corn Region of Norfolk but was developed equally in the Wood-Pasture Region. Dr Kerridge has recently written of the turnip husbandry of High Suffolk in the seventeenth century, in conditions almost identical with those of High Norfolk—i.e. the Wood-Pasture Region; three of the "Suffolk" villages for which Dr Kerridge has found early references to turnip cultivation are, in fact, in Norfolk.—*Economic History Review*, Second Series, VIII, 1956, pp. 390-2.

⁴ N.C.M.R., C.B. 25:98; 26:24d.

foldcourse in Foxley tried to do so in 1755: he agreed to accept two shillings per acre for shackle lost on land sown with turnips, but he obliged tenants to cultivate the crop only on such enclosed and open-field lands "as shall lye in Shifts or Contiguous together." At Michaelmas, when shackle began, his tenants were to "hurdle or Fence the same out with a Fencing Stuff in such a manner as the Shepherd . . . may without any Annoyance keep the flock . . . from feeding of the said Turnips."¹ By such means, the disruption of many foldcourses was delayed until they were finally removed by the Parliamentary Enclosure Acts in the second half of the eighteenth century.²

VI

In many parishes in the Sheep-Corn Region, enclosure and the extinction of the foldcourse system were not left to the Parliamentary Enclosure Acts. While some landlords fought to maintain their foldcourses until the eighteenth century, many other, more progressive, farmers had reorganized their estates during the seventeenth century, and numerous parishes were wholly or partially enclosed by the time the Enclosure Commissioners arrived. On these estates the traditional Norfolk open-field system was completely displaced: the arable fields were enclosed as the 'infield'; the heaths and commons were divided into enclosed brecks, and became the 'outfield'. The infields were leased in large, compact farms to tenant farmers whose labour was provided by the remainder of the former open-field landholders. New crops, rotations, and methods of fertilization replaced tathing, but sheep assumed a new importance, folded and fattened on turnips. The outfield brecks might be included in these farms, but were often leased separately as 'foldcourses'³ (although they bore little resemblance to the traditional foldcourses) and were prepared for periodic cultivation by large flocks.⁴

¹ Holkham MSS., Billingford and Bintree Deeds 15:1003-4. Similar conditions were imposed on tenants in Hellesdon in 1723 when turnips and carrots were cultivated as field crops.—N.P.L., MS. 9697 (bundle of MSS. concerning the foldcourse, 1684 to 1723).

² E.g., that for Happisburgh and Lessingham in 1801 was "An Act for dividing, allotting, and inclosing the open and common fields, half-year or shack lands, commons, severals, and waste grounds within the parishes—and for extinguishing all rights of sheepwalk and shackle in, over and upon the lands and grounds within the said parish of Happisburgh."—Statute 41 George III, c. 22.

³ E.g., at Warham in 1712, the heathland consisted of "The breaks or fold course."—Holkham MSS., Map 2:23.

⁴ Farmers of foldcourses were strictly bound by their leases: for example, L'Estrange insisted in 1696 that one lessee should "tath in ye last year as much of the Brecks and Cleylands as shall be somertilled, with his Flock which shall consist of 700^c sheep and the Fold to consist of 8 dozen hurdles sett in a square fold."—L'Estrange MSS., KA 14.

As a feature of the changes involved in the development of the new Norfolk Husbandry, the infield-outfield system was the creation of the later seventeenth- and eighteenth-century improvers. In some parts of the country, however, an infield-outfield system was employed at a much earlier period for the cultivation of sandy and infertile soils. In Northumberland and Cumberland, for example, it has been shown that the infield-outfield system was the primitive predecessor of open-field farming.¹ The infield-outfield system of Norfolk was of an entirely different nature.

Until the seventeenth century, most villages in the Sheep-Corn Region of Norfolk contained a large, permanently cultivated field, and extensive outlying heaths and commons (see Figs. IV and V, for example). In some cases, modification of this lay-out began in the sixteenth century: a few acres of heathland lying in a foldcourse, and dunged by a flock of sheep, were occasionally tilled.² Later, such pieces of heathland were enclosed as brecks and tilled at regular intervals. But no essential change in the Norfolk open-field system was involved, and the foldcourse husbandry was not affected by the fact that the new brecks fluctuated, as it were, between the arable and heathland sectors of the foldcourse.³ It was, indeed, sometimes land in the demesne brecks that a landlord offered to his tenants in exchange for feed on their strips that lay within the summer fallow shift of his foldcourse.⁴ This stage in the development of the infield-outfield system is well illustrated by the situation at West Wretham and Great Massingham.

During the seventeenth century the cultivation of heathland brecks was greatly extended; flocks then fed on the unenclosed heathland, the brecks, and the summer fallow and winter shackage of the open-field arable land—the infield. A further improvement was effected by dispensing with summer fallowing as methods of husbandry improved.⁵ Finally, in the later seventeenth and early eighteenth century, both heathland and open fields were completely enclosed, and the terms 'infield' and 'outfield' were widely used for the permanently cultivated closes and the periodically tilled brecks.

¹ See the discussion by H. P. R. Finberg, 'The Open Field in Devon', in Hoskins and Finberg, *Devonshire Studies*, 1952, pp. 283-8.

² E.g., at Hargham a foldcourse included heathland, common and waste land, part of which "may be plowed at ye Lord's pleasure."—B.M. Hargreaves 249 (1629).

³ E.g., at West Wretham the heathland included seven brecks—the outfield; the whole of the heathland, including the brecks, and the open infield lay within the demesne foldcourse. See H. C. Darby and J. Saltmarsh, 'The Infield-Outfield System on a Norfolk Manor', *Economic History*, III, 1935, pp. 30-44. And at Great Massingham, three foldcourses extended over the open arable infield and the "owte fylde or sheps walkes."—Holkham MSS., Massingham Deed 6:103 (1538-9) gives the earliest available reference to the system here.

⁴ E.g., at Docking.—P.R.O., C 2:H 11:45 (1591). For such exchange, see *supra*, p. 20.

⁵ L'Estrange MSS., Box IC (undated, early eighteenth century).

These changes are perhaps best illustrated by maps of the earl of Leicester's estates.¹ The infield-outfield system in Norfolk was the basis of a husbandry greatly improved from that of the traditional Norfolk open-field system.

A quantitative assessment of the different ways in which the traditional sheep-corn husbandry was displaced is impossible. Throughout the Sheep-Corn Region, modifications and improvements were being made during the seventeenth century as new crops and methods were introduced. In some areas, above all in the Good Sand Region, extensive enclosure had ousted open-field farming and profoundly changed the nature of the foldcourse system by the early eighteenth century. While the more progressive farmers had recognized the inefficiency of common-field farming and the profitability of mutton production in a new sheep-corn-turnip husbandry, other landlords had attempted to maintain the traditional foldcourse system and to reconcile it with the increasingly popular piecemeal enclosure and turnip cultivation by their tenants. For this reason, the foldcourse system survived precariously in many townships until the second half of the eighteenth century, to receive its death-blow from the Parliamentary Enclosure Acts. Soon after 1800, open-field farming and the foldcourse system were finally superseded by the new Norfolk Husbandry throughout the Sheep-Corn Region.

¹ E.g., Flitcham, N.P.L. MS. 4290 (map, 1550-80), 4293 (map, 1655), 4295 (map, 1728-44), 4296 (map, 1828); Wighton, Holkham MSS., maps 3:27 (1720), 3:31 (c. 1750); Longham Holkham MSS., maps 5:92 (c. 1580), 5:93 (1700-25).

NOTES AND COMMENTS (*continued from page 11*)

it is hoped to publish articles on, "the problems of folk life in England, Ireland, Man, Scotland, and Wales," as well as material on cultural links with Scandinavia, Europe, and America. He also explains that the name *Gwerin* was chosen since it is the Welsh word for folk, and he defends its choice on the grounds that the inspiration for it, and many of its subscribers, came from Wales. Since, however, the aim is to produce a publication of universal appeal a title in a more commonly understood language would be preferable.

Volume I No. 1 contains articles on the construction of straw rope granaries in Ireland by A. T. Lucas, Hebridean traditions

by C. I. Maclean, rake and scythe-handle making in Bedfordshire and Suffolk by T. W. Bagshawe, and a note on the Welsh folk-life survey. Future numbers will contain book reviews. *Gwerin* is published by Basil Blackwell in Oxford, and an annual subscription for two issues costs twelve shillings.

SHOOTING ON HILL PASTURES

Capt. Sir Hugh Rhys-Rankin writes:

I should like to emphasize a point in British farm history which no historian has yet noticed, namely, the effect of shootings upon the hill sheep industry and on sheep

(*continued on page 51*)

The Consolidation of the Crofting System

By MALCOLM GRAY

ONE of the most notable results, perhaps, of local study has been to modify conceptions, long held, of a concerted advance, through the centuries and over Britain as a whole, towards a system of large farms, run by men of capital and manned by a numerically predominant wage-earning labour force; and of the progressive thinning of the rural population to fit the needs of efficient cultivation. Here and there have emerged discrepant areas—areas of a continuing small peasant system, of overpopulation, of mixing of occupations. And one of the tasks of agrarian history must be to disentangle the forces that have produced such oddity within the broad trend. Apart from Ireland, the best known of these areas is the Highlands of Scotland, where there persists, in the form of the crofting system, a society cast in the mould of the early eighteenth century. In this article I propose to discuss the reasons for the divergent agrarian development of the area.

The present distinction between Highlands and Lowlands is not only that between a commercialized, and largely industrial and urban, society on the one hand, and its rural opposite, without towns or industries, on the other. There are also important differences in the strictly rural organization of Highlands and Lowlands. In the former zone, a very high proportion of the population has in one way or another access to land, although only as tenants or subtenants (for the ownership of land within the Highlands has always been aristocratic and highly concentrated). Partly as a consequence of the broad dispersion of rights to land, holdings are generally, by all modern standards, very small, too small to provide full subsistence from the land. Again in the Highland townships proper there is no rural middle class, no significant number of farmers with more than the basic modicum of land. With holdings so small, most of the holders of land, along with their families, are forced to pursue a number of occupations, some of them locally, but some involving considerable periods of absence and perhaps lengthy journeyings. The croft, in fact, is a centre for a family of diverse interests rather than a simple unit of economic operation. And lastly the arable land has, until very recently, been cultivated entirely to produce a subsistence crop; even an area so well adapted to animal husbandry has not developed genuine mixed

farming, and the arable has not been used to any extent to support the rearing of stock, the cash element in the system.

This system of organization does not obtain all over the area geologically defined as Highland (that is over all the land north and west of the Highland line, which runs transversely from south-west to north-east and virtually bisects Scotland). For over the easterly coastal lands, even to the far north, the system conforms, and prosperously, to that of the rural Lowlands; the eastern slopes of the mountain massif, and westward as far as the main watershed, support in the main a system of substantial peasant farming; and the whole of the Highland area is interspersed with large sheep farms. Yet within shrunken geographical limits—along the western coast as it extends north of the Caledonian Canal and through the islands to the north and west of Mull—the crofting system remains compactly organized and undiluted; the sheep farms which lie adjacent to the crofting townships scarcely affect their working except by constriction of bounds¹ and the greater peasant or capitalist farming classes have obtained little hold on the arable land of this north-westerly zone. Crofting may be studied, then, as a coherent and virtually unalloyed social system, with only occasional reference to the big sheep farms lying adjacent, and study should be capable, given the records, of isolating the formative forces. They may be local to the place and particular to the time, but laid alongside the case studies of other areas they may help towards broader conclusions.

I

If it is tempting to see the distinctive Highland system as archaic, or backward, it is easy to explain its persistence in terms of a lag established in the days of isolation and turbulence; the relatively slow development of the Highland agrarian system—if that is the diagnosis—will, in that case, have its roots in two levels of development already relatively fixed in 1745. But this easy theory scarcely stands up to more detailed examination. In fact the decisive period of separate crystallization seems to have been the century following the pacification, precisely the period when age-old isolation and lawlessness were vanishing. In 1750 the economies and agrarian systems of Highlands and Lowlands did not show to contemporaries the monstrous

¹ The conflict between croft and sheep farm is, of course, one of the main themes of Highland history. But the extent to which sheep farmers took over land previously occupied by the small tenantry is scarcely relevant to the present discussion. The important facts are that sheep-farming did not stimulate fresh agrarian adaptations within the peasant sphere (except perhaps by accentuating the existing dominant characteristic of the small peasant system—crowding on the land), and did not suck in local labour to any degree.

contrast between apparent stagnation and undoubted progress that they did a century later. In field arrangements,¹ in size of holdings, in methods of husbandry,² in occupational structure, Highlands and Lowlands were at the earlier date recognizable parts of a single uniform order; the differences were differences of balance rather than of essence. But by 1850, on almost every point by which economic historians seek to define agrarian systems, there was contrast: in the Highlands were to be found now tiny holdings, no wage-earning class, universal access to land, purely subsistence cultivation, mixing of occupations, unchanging techniques; in the Lowlands the growing domination of the rural middle class, large farms (or the intermixture of large and small on a graduated scale), a wage-earning class almost landless, commercial purpose, the gospel of economic efficiency to replace that of social conservatism, the complete specialization of occupation. This had followed a hundred years of complete political control from the country's capital, from the Lowlands; the small peasant system was consolidating in the north-west precisely when the isolation of the area and its social and administrative autonomy were vanishing. Nor is the widening gap to be explained by Highland stagnation at the time of the Lowlands' most rapid development. Indeed, in the Highlands, as in the Lowlands, it was a time of unprecedented change. A population rapidly on the increase, an old field system suddenly overthrown,³ a new basic subsistence crop—the potato—established over the greater part of the land,⁴ the rearrangement of the land as between large and small farmers, the rise and decline of at least two major industries (kelp-making⁵ and linen-spinning), the extensive migration

¹ The runrig system obtained both in Highlands and Lowlands, although not identically; the pastoral component was, of course, greater in the Highlands and 'periodic' runrig (with reassignment of strips) was still common while in the Lowlands it had widely given way to fixity of individual tenure.

² One major difference was the use in parts of the Highlands of the cas-chrom (a type of spade) rather than the plough; but this was a distinction that time was to accentuate as the cas-chrom lingered in certain populous Highland areas while the Lowlands developed new implements of cultivation.

³ This was the time when the crofts, compact arable holdings, were laid in place of the mingle-mangle of the runrig farms. For a fuller discussion of the nature and results of the process see M. Gray, 'The Abolition of Runrig', *Economic History Review*, Second Series, v, 1952, pp. 46-57.

⁴ On the general adoption of the potato see R. N. Salaman, *The History and Social Influence of the Potato*, Cambridge, 1949, pp. 364-70.

⁵ Kelp was an alkaline extract of seaweed, manufactured by burning great masses of the weed in rough open kilns. From the middle of the eighteenth century onwards it commanded an increasing price, being used in the manufacture of soap and glass. To make it was a laborious, seasonal, and largely unskilled activity, and production was tied to the coasts where the seaweed was abundantly to be found. In the social and geographical conditions of the north-

of labour both within and from the area as a whole; the broad magnitudes of rural life were altering their balance even if many of the minutiae seem to have been set fast.

Such change was no doubt partly a matter of manifold peasant response to industrial opportunity, new agricultural products, fluctuating prices, and an extending horizon; but also there was conscious, and powerful, drive in the energetic experimentalism of a small group—the landlords. In many ways, they moved against the general feeling of peasant society, but they had a power, built into the land system, that was hard to blunt. For the control of landed property was in 1750, and remained thereafter, highly concentrated, and in all the Highland counties a group of less than a dozen landowners controlled the greater part of the land area. Of peasant ownership there was none. Moreover, the great mass of the farmers held their land at will; the law would give no protection against a landlord who wished completely to reorganize the tenancies of his estate. It is true that a portion, sometimes considerable, of the land was in the hands of a lesser hereditary aristocracy, the tacksmen, men who (as collateral relations of the landowners) received their lands on tack (or lease) at long or medium term; but even such men were on the expiry of their leases powerless before the landlord. Many of them indeed had to accept eviction, increased rent, or a diminished sphere of interest in the impending period of change; some were to leave the country, leading the first great emigration movement.

What gave this landlord right its peculiar force after 1750 was the dogmatic addiction of the class to the tenets of the eighteenth-century improving and progressive creed—an addiction somewhat tempered, it is true, by lingering patriarchal sentiments. Men of such outlook found little to their taste in the Highland scene of the time. Privileges of birth tied up a good deal of the land, away from direct landlord control, under men of little agricultural expertise and less ambition. And, even worse, the granting of minute holdings to a numerous population held down a population admittedly too great for the land, and pulverized the land into units too small for systematic cultivation. Here, then, were the attitudes of reform and the power to change that might have been expected speedily to sweep away an old and abhorred system. But there was a counterpoise to reforming energy, and distractions to turn even the landlord from the orthodox aims of progress. In fact, a main theme in the development of our area in the century under discussion is the

west Highlands and of many of the islands, then, production continued to expand through the period of rising prices till the peak was reached about 1810. After 1815, however, prices collapsed and the industry entered a period of decline. See M. Gray, 'The Kelp Industry in the Highlands and Islands', *Economic History Review*, Second Series, iv, 1951, pp. 197-209.

struggle between the apostles of progress—the landlords—and a recalcitrant and back-sliding tenantry. No group can have absolute power over the basic forms of society, and even a reforming Highland landlord of the eighteenth century had to work within a framework which he must take as given and fixed rather than as personally controllable.

The most obtrusive and implacable of the social facts which confronted the reforming landlord was the existence, typically, of a large population on a restricted arable surface.¹ Thus, in the north-west, there would not usually be more than two arable acres worked for each family, and in some districts the average would be down to one to each family.² Moreover, this population was so disposed as to allow nearly every family some land to cultivate as its own; while there were servants—more numerous than a hundred years later—all of them mixed labouring for others with work on the personal holding. The result was a minute parcellation of land that rendered the inadequacy of subsistence all the graver. Whatever the past trends and the present justifications of the system, it challenged the agricultural improver—and therefore the landlords—on the subjects nearest the heart. Holdings arranged in this way could scarcely be worked in accord with the most advanced prescriptions; any improved cultivation of the soil must, it was generally agreed, start with the laying of larger holdings and, presumably, the diminution of the dependent population. Yet landlords were divided in their minds—apart from the acceptance of *force majeure*—on accepting any rigorous depopulating prescription. A large population was the material of an industrial labour force which, at a time of industrial exploration even of this remote fringe, might be turned to good advantage; and few in the eighteenth century could think of a large, or an increasing, population as a bad thing. The landlord had to balance the claims of purely agricultural necessity against the general predilections of the political economy of the time, while

¹ Whether this constituted true land scarcity is doubtful; it is at least arguable that it was not shortage of potential arable land that held down production per head. The smallness of the holdings may, in fact, have been due to other factors than mere scarcity: for example, to gregariousness (or the necessities of defence) which would collect people closely on one arable patch while other scattered, and potentially equally good, patches were left, to the general adoption of household and industrial techniques that used up so much labour power that little time was left to cultivate any substantial area of land, or to agricultural technique (the use of the *cas-chrom*) which kept the agricultural range of the individual family within narrow bounds. What is certain is that all agricultural improvers looked to the broadening of holdings by decrease of population, by extension of the margin of cultivation, or by use of more effective implements and concentration on agricultural tasks—a programme which, if physically feasible, would have to bear away a great weight of social conservatism and inertia.

² See, particularly, the details of estate layout given in several volumes of the *Forfeited Estates Papers*.

perhaps casting back a thought to the days of patriarchal glory when a long tail of followers was the essence of power and prestige. Into this crowded social scene there was injected, through the succeeding century, a general, and sometimes dramatic, increase of population. With rising physical productivity (per acre and perhaps per man), a death-rate probably falling (through inoculation against smallpox), rising money incomes, and a land policy that made holdings readily available, most of the parishes of the north-west were to see their population doubled before 1850, and, in some, numbers were to increase threefold. This demographic trend fitted into the agrarian order—whether as cause or effect—by the multiplication of holdings, to such a degree that the increased numbers of families were all accommodated on separate holdings of one sort or another.¹ Why holdings were allowed to increase in number on a restricted land surface at a time when improving dogma pointed to consolidation and diminution of numbers is perhaps the most pregnant question that we could ask about the period; certainly the answer must contain some essential clues to the problem of Highland eccentricity.

But the Highland economy was not, even in the earlier eighteenth century, a simple subsistence system, and welfare and development depended on factors other than the physical product of the land and the numbers of people who must depend on that product. It had also an important commercial, or money, component, and the drift of prices—which also the landlords had to accept as an external fact—would presumably affect immediate standards and future possibilities of growth, in helping to determine population trend, the extent to which land might be subdivided, occupational grouping, and technical exploration. The peasant's need for money and the importance to him of fluctuations in his money takings arose for three main reasons. He paid for his land by a money rent; he must purchase certain raw materials (such as timber and iron) out of which he manufactured both consumption and capital goods;² and frequently he must purchase food (in the

¹ Not all families were accommodated as direct tenants or on official holdings; in fact the proportion of direct holdings to all families, about 1850, varied in north-westerly parishes between 30 and 70 per cent, the remainder obtaining their land as subtenants (or cottars). But the number of direct holdings (i.e. holdings created by direct action of the landlord) increased at least proportionately to the general increase of population. In about half the parishes of the north-west the number of such holdings in 1850 was greater than had been the total number of families a century before. See M. Gray, *The Highland Economy, 1750-1850*, Edinburgh, 1956, Table X.

² To this list might be added the purchase of a few already manufactured goods (from the Lowlands). In the main, however, the Highland peasant either made himself, or employed local semi-specialized labour (often on barter terms) to make not only his clothes and articles of household use, but also the ploughs, boats, mills, and cottages that formed the rudimentary

form of meal) to make up for the deficiencies of the arable patch.¹ Thus, any change in his money income fitted into the welfare and demographic picture in complicated fashion. An increase might be skimmed off in increased rent; or it might be taken out in more varied and plentiful consumption goods; or holdings might be made smaller, the tenants living more by purchased food and less by their own subsistence efforts.

Thus, one of the paramount facts of Highland development—and of the situation to which landlords had to adapt their policies—was the rise in prices, and consequently in peasant incomes, that held till about 1815. The main source of income was traditionally the sale of cattle, and cattle prices about trebled in the second half of the eighteenth century,² while the price of meal, the main commodity to be purchased by the Highland peasant, remained more or less steady; on the central nexus of exchange the Highland economy was undoubtedly gaining till about 1815. In addition, during this time the steep rise in the price of kelp—the seaweed product that, given only an adequate labour force, could so well be produced along great parts of the western seaboard—opened to the peasant the possibility of adding to his income by industrial work over a short summer season. Linen-spinning also was expanding, but scarcely reached the north-west coast as a significant activity. Fishing, on the other hand, was an age-old and already commercialized peasant occupation, and, on the whole, while prices remained steady, total output seems to have been slightly on the increase through the second half of the century. All this added up to an almost dramatic increase in the returns from Highland produce sent to Lowland markets and, consequently, to an extension of the capacity of the Highland economy as a whole to purchase the materials, foods, and commodities on which welfare and growth depended. In fact, as we have seen, population was growing, but neither the individual size of the holding nor the subsistence product available to each family seems to have diminished; although there may have been some slight decrease in average stocks of cattle. Increased money income capital equipment of his technology; but there was scarcity of crucial raw materials, particularly timber.

¹ Most Highland districts were steady net importers of meal from distant parts, sometimes up to half of the required subsistence being purchased in this way; but a few parishes might reach self-sufficiency in the better years, and in the odd case (such as Kilmuir in Skye) there might be a surplus to distribute in surrounding regions. See, particularly, amid other evidence, the parish reports in the *Statistical Account of Scotland*, Edinburgh, 1790-8.

² Cattle prices are particularly difficult to handle owing to local differences, short-term fluctuations, doubts about the age and type of animals listed, etc., but there is sufficient statistical fullness to justify firm generalization. See *Commissary Court Records* and the *Old Statistical Account*. For meal the evidence is much thinner, but all tends to the conclusion that there was no dramatic change in the period.

went, then, partly in greater dependence on purchased rather than home-manufactured goods; but much more notably, by a rise of rents more than proportionate to the increase of incomes, a larger share of total money income was diverted to the pockets of the landlords: almost the whole of the peasant's money income, as derived from the land, was handed over in rent, while the peasant drew his food more completely by the simple subsistence cultivation of his patch.¹ The years after 1815 were to tell a different tale. Agricultural prices dropped and the kelp industry was virtually destroyed. But the drop in income did not restore the pre-inflationary situation. Population was irrevocably greater than it had been in 1750, and landlords, thinking that bad times were but temporary, held their rentals at or near the top levels. The result was peasant debt and a great wastage of capital—'y selling of cattle—which reduced nearly all peasants to the basic minimum of stock. Any consolidation of holdings was ruled out not only by land scarcity but also by shortage of the capital necessary to stock larger holdings.²

A third set of facts that the landlord had to accept was peasant response to schemes of land rearrangement, to the unfolding possibilities of improved cultivation, and to specific admonitions. On the whole, perhaps because of the mere fact of distance, the farmer of the north-west showed much less inclination to desert his traditional land for the gains of the Lowlands than did his like in the southern and eastern parts of the Highlands;³ consequently the gentle reliefs of voluntary migration were denied in the former area and any consolidation of holdings was the more difficult. By universal testimony, too, the tenant of the north-west was more conservative in his methods of cultivation; while turnips, artificial grasses, and many of the prescriptions of the improver were commonly adopted even by the smaller tenants, say, of Perthshire, they remained unknown among the crofters further north and west. But perhaps it would be unjust to call the north-western Highlander simply blind or obstinate. His preoccupations were different—simple subsistence yield rather than the greater cash product that might be removed by the landlord—and his holding was miserably small

¹ There were still, of course, wide purchases of meal; but they were paid for often by money earned in industrial by-employments, particularly kelping.

² This, for example, was the unanimous testimony of the witnesses examined by Sir John M'Neill before making his *Report to the Board of Supervision on the Western Highlands and Islands*, 1851.

³ There was considerable net migration from all Highland counties to other parts of Scotland in the half century before 1850; but this rate was significantly greater from Argyllshire than from the more northerly Highland counties. Correspondingly, the figures of population increase are more dramatic in almost all north-westerly parishes than in most of the parishes of the more southerly and more easterly Highlands. See *Census Report* for 1851.

for any experiment. Even the landlord enthusiastic about the lore of improvement found it hard to pass his enthusiasm on to the men who mattered in this respect—the working farmers themselves. One capital fact, however, represents rapid peasant adaptation—the general adoption, from 1750 onwards, of the potato as the main food crop. It was a crop temporarily satisfactory, perhaps, in increasing the food yield of small holdings, but which also set in train, or accelerated, demographic reactions that would render agrarian reform all the harder.

II

These, then, are the main facts which landlords had to accept and to which they must adapt their devices—overcrowding on the land, increase of population, fluctuations of money income, and peasant conservatism, mitigated by alacrity in adopting the potato. Their problem was how to adapt the dogmas handed to them by the articulate social thought of the time to the objective and inescapable local situation. Here, three main themes of policy may be picked out of the complex system of ideas of agrarian betterment which was the orthodoxy of the time: the determined destruction of the old field system with its scattered strips and division into infield and outfield; the attempt to lay holdings in desirable sizes (which raised the problem, generally, of how to deal with the superfluous tenants); and finally the stimulation of diverse industrial pursuits and the separation of the occupations of agriculture from those of industry. If this was a programme—enclosure, consolidation, and specialization—it is as interesting in showing how far performance fell short of, or even diverged in direction from, theoretical desiderata as in sketching any ultimately achieved social reality. Analysis of the reasons for this divergence will show how the conditions of the Highlands could distort a programme elsewhere achievable.

The first theme—the destruction of the old runrig farms—is simple both in conception and result. It represented a straight line of policy energetically pursued and it created the physical form of the croft as we know it today. There were no doubts in the minds of landlords about the true dictates of progress here and little that could stand against the achievement of their programme (even if the tenants themselves were much attached to older forms of organization). Thus, in the course of about eighty years—between 1770 and 1850—an age-old and highly uniform system of farm arrangement, the runrig system, was swept away throughout the Highlands, to be replaced by the townships as we know them today. Again the superficial form was surprisingly uniform from place to place—the clustered array of compact holdings surrounded by the hill grazing, which remained undivided

common, allocated on a system of stints. Only one comment need be added. This, of course, was a form of enclosure, the gathering together of scattered arable strips in compact blocks; but it was seldom followed by physical delimitation between croft and croft. The arable remained open ground and many of the indiscriminate pasture arrangements of the old township were retained. The abolition of runrig did not mean any sudden jump in methods of husbandry.

The second theme—that of the size arrangements of the holdings—was again, or so it might seem, wholly under the control of the landlords; the Highland landlord could, for all the law had to say, rank and shape his holdings as he might wish. And the instructions of the improver seemed to be quite unequivocal. The importance of capital as a social agent was never far from the eighteenth-century mind, and the improving discussion generally ran in terms of handing over the land to men of capital, men who would organize on it an efficient wage-earning force accurately fitted in numbers to full productive necessities. It was almost a truism that only thus could energy and initiative be found, only thus the labour force set efficiently to work, and only thus the funds found for the equipment of the farm and the permanent improvement of the soil. Yet the landlords' responses to the challenges of situation and thought were by no means firm and unequivocal, and the results were often opposed outright to all that agrarian reformers had to say. The interests and the obstructions that produced this wavering are the sum of the local peculiarities which, in the general march of the time, turned the direction of Highland development.

First, farms of even moderate size would be achieved only by tearing apart the existing social system. There had been no continuing movement through the centuries (as in England) to produce even the beginnings of a class of substantial well-to-do farmers, the men who alone could stock and run such farms; and while every family clung grimly to its land as of ancient right, even individual wage-earners of the landless sort were difficult to find. Further, agrarian rationalization demanded not only that the number of independent holders of land be reduced—a task in itself hard enough—but also that the total rural population be thinned.¹ Nothing short of forcible eviction was

¹ The only painless way of creating larger farms was to extend the arable area to support the existing population more thinly dispersed (even then, if the farms were to be of any size, a wage-earning force must be found), and some seized on this possibility as the solution. The extent of possible arable cultivation in the Highlands has always been doubtful and in the eighteenth century was often optimistically estimated. But at best this could only be a solution over long term and it did not overcome the difficulty that no employing class offered itself. The Highland landlords of the eighteenth century, partly for financial reasons, were generally immersed in immediate problems and could not afford too long a view.

likely to move a population as devoted to traditional homes as was this. Even widening economic opportunity in the Lowlands and the knowledge of that opportunity that must have been carried back by seasonal migrants would not pull the surplus off the land. In short, the opposition of the small peasant system to capitalist encroachment was accentuated by Highland geographical and social conditions; while the rival and growing system had the strength only of theoretical authoritarian support (and that not always wholehearted). In fact, then, within our area eviction and consolidation were confined to the land taken over by sheepfarmers, a conversion which itself added to the crowding on the lower arable ground. A less outright policy of consolidation was, it is true, sometimes mooted: it was to create the holdings that would give each landholding family an adequate livelihood solely from full-time cultivation of the farm and without use of hired labour. Even this implied eviction and would have had to bear down much peasant opposition. However, in the south and east, in Argyllshire, Perthshire, and parts of Invernessshire, such a peasant system slowly grew; but this was in a land system more relaxed than that of the north-west: the land here had never been so crowded, population was not increasing to the same extent, labour was more willing to move to work permanently in the Lowlands.¹ The root facts, in the north-west, were that consolidation even of moderate sort, to build up fully independent peasant holdings, could be achieved only by brutal clearance. Not only was the land as it stood overcrowded, but also people clung desperately to the slight independence of their tiny holdings; no work was available locally to seep up labour cast adrift from the land; population was increasing rapidly; the spread of sheep-farming was congesting the remaining arable; and, while local capital was lacking, arable farming in the Highlands was not sufficiently profitable to attract outside capital and men (as did sheep-farming).

All this might have been sufficient in itself to damp the reformer's ardour and to reduce any landlord to acceptance of the old smallholding system. But also there were more positive enticements to confuse policy. The possibilities of industrial development were a preoccupation not altogether delusive and not without genuine hope of profit; and the encouragement and arrangement of subsidiary industries tended to obliterate the interest in land reform, but in ways that were themselves pertinent to the organization of farming. In the wide and continuous discussion of industrial potentiality that filled so much of the later part of the eighteenth century, nothing is so striking to the modern student as the fact that the industrial backwardness of the Highlands was not yet accepted as inevitable or even likely. Land-

¹ See above, p. 38.

lords were particularly interested in this discussion because in industrial expansion they might look for some relief to their pressing land problems; labour surplus to the needs of the soil would be absorbed in purely industrial employment. The orthodox aim was the separation of the industrial from the agricultural labour force, and some experiments were made in the nearer Highlands in setting up villages in which an industrial working class would prosper in symbiosis with a productive countryside. But this was not to be the directing idea in the north-west; here it was that of the peasant remaining on his land and working at subsidiary industry to add to his earnings and increase the rentable capacity of the estate. Thus could a large population be prosperously employed, and with advantage to the landlord; and so does the large and growing population—even a population growing at the expense of agricultural efficiency—creep back as the respectable aim of policy. At the extreme, land becomes the instrument for accommodating as large an industrial population as possible, not a productive agent to be used with careful economy. Most notoriously effective in this way was the kelp industry, an industry which produced the maximum of industrial temptation and diversionary interest for the landlords. A seasonal occupation, requiring little skill and no equipment, it could be combined with the working of land in traditional ways. To allow the kelpers land was an advantage to the landlord (who was also industrial employer), for thus they could grow their own subsistence and at the same time pay some money rent from the sale of cattle. And from the kelping itself the landlord stood to gain in two ways: because of wage-receipts,¹ he increased the rent he could draw from the tenant, but, much more important, there were very large entrepreneurial gains to be made from the sale of kelp made by estate labour. As kelp prices rose—without corresponding increase in costs—towards the peak of 1810–11, so did financial self-interest become the more compulsive. For a handful of kelp magnates rents came to be but a small proportion of their total gains (which might run between £10,000 and £20,000).² A much greater number of proprietors of land—perhaps the majority of those with seaboard estates—were in it in a smaller way, and the same motives operated, if less powerfully. Possibly a majority, then, of landlords—and particularly those with the largest estates—were swung by self-interest to the policy of crowding their

¹ These wages, of course, represented costs to the landlord as industrial entrepreneur, but, even so regarded, their return as increased rent meant that the employer was selling a product he had obtained virtually without cost. And even if wages be reckoned as a full cost there was still a margin of about £15 on each ton when at the peak kelp was being sold at about £20 per ton; the greatest kelp landlords would sell each over 1,000 tons in a year.

² About half a dozen landlords were dealing with over 500 tons a year, the greatest with about 1,500.

land and of subdividing rather than consolidating their holdings. Not only the demography but also the agrarian layout of the north-west was to be permanently, perhaps decisively, affected by the rapid growth of this industry. Preoccupation with fishing may have had something of a similar effect, if in a more diffused and gentle way. Even though the eventual aim might be to produce specialized communities of fishers, the first step was to lay out the holdings that would support them till the industry became fully viable. Designedly they were smallholdings, and they had permanently to be accepted as standard agricultural units, for not only would consolidation of holdings, once laid, be difficult, but also the faltering fluctuations of fishing as an industry prevented any specialized industrial growth.

The force of this conjunction—of the general approbation of an increasing population, of lingering patriarchal feeling, of positive industrial advantage in a large smallholding population, and of the social conservatism of the peasantry—was to commit the landlords to the support of the existing smallholding system. Agrarian reform and agricultural improvement were weak ideas to set against the decisive combination of social facts and financial interests. Thus, the drift of opinion and interest worked into policy in three main ways. First, the number of official holdings was not only maintained but increased; rent-rolls of 1850 when compared with the population figures of a century before leave little doubt that in most cases there must have been at least twice as many full and recognized holdings at the later date.¹ They could have come into existence only with deliberate landlord encouragement. But they were not necessarily carved out of existing holdings. Study of the fragmentary evidence of size of holding in 1750 set against the fuller knowledge of the holdings of the larger population of 1850 suggests that the arable area as well as the population must have been extended,² and we read explicitly on occasions of the laying out of entirely new settlements. There may have been creations of new holdings going on fairly continuously—we do not know—but the main occasion and opportunity for the laying of new holdings would be the rearrangement following the break-up of the runrig farms; sometimes at this point of estate development the whole existing cottar and subtenant population would be offered full holdings.³ Secondly, on this occasion of the overturn of old arrangements, not too much attention

¹ This estimate is based on the population figures in *Dr Webster's Enumeration* (1755) and the average family is assumed to consist of five members; in addition it is taken—as is suggested by all available records—that less than half the population of that date would have the full status of membership of joint farms (whether or not the farms were held directly from the landlord, or indirectly through a tacksman).—Numbers of holdings in 1850 as given in Sir John M'Neill, *op. cit.*, Appendix A.

² See below, p. 44, n. 1.

³ As, apparently, on the Gairloch Estate.

was paid to the status of the tenants of the old farms. Maximum accommodation for the tenantry could be achieved only by shaving down all holdings to a standard, a reasonable minimum. Thus, though there may be doubt whether the average size of the holding changed as between 1750 and 1850,¹ there can be none that many of the peasants formerly of greater consequence than the average were shorn of their exceptional status; conditions among the peasantry became more equal—as far as formal size of holding went—than they had been. The usual pattern within the new crofting townships was to be that of the array of rigidly stereotyped holdings, not of a differentiated system giving opportunity to men of all grades. In fact, levelling was at first deliberate, though later in the nineteenth century, when opinion had turned against such a system, it was to be further enforced by lack of peasant capital. Thirdly, the control of landlords over subdivision and subtenancy, a continuing process, was extremely lax, at least until 1820. The preoccupation of administrators and landlords with the existence of a large class of subtenants or cottars becomes strongest in the third decade of the nineteenth century. But the class itself was no new thing; it had probably increased in absolute if not in relative numbers since the eighteenth century, and since many of the cottar holdings were obliterated when the farms were transformed there must have been fairly continuous re-creation of subtenancies.

After 1815 landlords' interests, in tune with the underlying economic situation, began decisively to shift. Overpopulation rather than a declining population became the bogey of the country, and nowhere more so than in the Highlands. For there the retreat of industry left an overcrowded² land for which the tenantry, with the fall in agricultural prices, was unable to pay rents at the existing level. Arrears mounted, the incomes of the landlords dwindled even as kelp profits disappeared; and finally recurrent famines created need for direct aid by the landlords, a need all the greater for the very numbers involved. The only solution, it was argued, was so to clear the land that more viable holdings might be laid and that there would be no cottar population, unproductive on the land, uncertainly dependent on subsidiary earnings, and constantly in need of aid from the proprietors. Attempts were made, then, to control and limit subtenancy, but the existing cottar classes could scarcely be spirited away without a brutal determination; and

¹ Patchily, in particular in the 'fishing' villages of Wester Ross, land conditions were worse about 1850 than they had been anywhere in the eighteenth century. But the standard croft holdings of the nineteenth century were in arable area (cattle stocks had diminished) certainly no smaller than the average joint tenancies of the runrig farms.

² That is, "overcrowded," both in the sense that the land could not provide full subsistence (or adequate money income) and in the sense that a smaller population might have produced as much (or more) to give the higher output per head necessary for full viability.

any attempt at creating larger holdings failed not only because of land scarcity but also because there were few peasants with the capital to stock larger holdings.¹ And all the time, at least until 1841, the increase of population went on. Landlords were caught, then, by the errors of their own policies of the later eighteenth century, and congestion and the minute subdivision of the land had to be accepted as facts.

The third of our heads—the separation of occupations, and in particular the separation of the agricultural from the industrial population—finds equally mixed motives and policies equally wavering. The need for this separation was one of the progressive dogmas of the time; yet, as we know, the period was to see the closer tangling of agricultural with other pursuits. The reason for this drift of social facts away from authoritative prescription emerges in part from the confusions of land policy. The major industries of the north-west—kelping and fishing—were such as could best be pursued by men with land; in spite of much theoretical argument for the contrary policy, estates were deliberately laid out to support a part-time industrial labour force. And even when there was no industrial preoccupation the effect of increase of population and fragmentation of land was very much the same; where men had inadequate land on which to live and to occupy the whole family energies, at least some of its members would go out to work, either of financial necessity or of choice, in other fields.

But if the continued mixing of occupations was partly the result of the whole trend of population growth and land arrangement, there were also other factors that would rivet these habits more completely and permanently on Highland society. For while the opportunity to undertake subsidiary occupations was created by physical redundancy of labour, the impulse to do varied work had its roots in monetary need. Incomes had risen till 1815, but rents also had been so screwed up that, even in the inflationary phase, the price of holding land was often to earn labourer's wages. And after 1815 the compulsion to add to basic agricultural income became so much the stronger. The manner of ordinary living was coming to depend somewhat more on purchased goods and less on home manufactures—even if the shift towards the money economy was only on the margins—and agricultural implements, such as the iron plough, were becoming much more objects of specialized workmanship and of imported materials. Individual purchases of

¹ Stocking was largely a matter of building up cattle stocks, which were conventionally larger on the larger arable holdings; but there seems no reason why, given the land, peasants should not have worked larger arable holdings for subsistence (provided the increase did not necessitate the use of the plough rather than the *cas-chrom*). The difficulty, then, was to get any increase of rent from a system of larger holdings.

meal were probably not year by year greater, in proportion to population, than they had been in the eighteenth century, but in the thirties the potato crop on which so much now depended began to show itself a precarious stay and in the years of famine the need for imported meal would be far beyond the ability of the tenants to meet the bill. But the central relationship was that between rents and agricultural prices. The fall in the price of cattle (by about 50 per cent) left the small tenant with an agricultural income totally inadequate to meeting his obligations in rent; and at the same time kelp income was partially cut off.¹ This situation had three consequences. First, the accumulation of arrears sunk the great bulk of the tenantry more or less permanently in debt. They continued to hold their land—debt was so universal that there were none in better pass to take the place of evicted tenants—but under onerous conditions of what amounted to labour service and at the cost of losing control of whatever money income might filter to them. Secondly, tenants were forced to sell their cattle till stocks fell well below the level permitted by local regulation (which was used as the standard in setting rents). The chances of recovery were then the worse, and income from diminished stocks fell further. Thirdly, and most importantly for the present argument, tenants were forced to add to their money income as best they could by outside labour. Such labour, with the decline of kelping and the continued uncertain fluctuation of fishing, generally involved long-distance, if seasonal, migration, an old Highland practice. The traditional direction of movement had been south-eastwards to aid in the Lowland harvest, and some continued to move to this work. But a great new employment field had appeared in the fishing communities of the east coast, in Caithness, along the Moray Firth, and in Aberdeenshire. Here for six weeks around midsummer the local fishermen with their heavy craft, so much better equipped than were the boats of the west coast, would take on numbers of wage-hands; while ashore there was work to be had in carting, gutting, and packing. Altogether several thousands of Highlanders, mainly from the north-western area, moved east in the season. From some parishes as many as, on the average, one member from each family would go; and with these migrants bringing back up to £6 in their pockets, the rewards of

¹ On the smaller estates of the mainland and inner isles kelping was stopped completely and the peasant lost what had never been a predominant part of his income; also not all had been accustomed to earn in this way. In the outer isles, the whole population was engaged, and many in such a way that they earned more from kelping than from farming; in such estates kelping was often kept on as a means of getting something from a tenantry which could not pay in money for the land. Wages did not drop much, but output tailed off, and in any case kelp earnings were all seized by the landlords. In effect the peasantry were earning the use of some land for subsistence cultivation by labour services.

seasonal labour were often, for the crofting family, as great as the monetary rewards of husbandry. It was this, more than anything else, that kept the smallholding system alive.¹ A steady and dependable stream of income did filter through an economy which was threatening, if not to fall into outright dependence on charity, at least to strangle in barter conditions; an unsteady supply of subsistence was derived from a land paid for on nominal labour terms, or sometimes given in exchange for labour in kelping or on the estate—a condition in itself limiting to endeavour, but also precarious in depending partly on purchase of necessities (in the Lowlands) from a money income always unreliable and stretched, whether in the hands of landlord or of tenant. Anything that made the money income steadier would significantly stabilize the economy. If such labouring opportunities helped to rescue the smallholding society, they also perpetuated and strengthened the tradition of seeking work away from the holding.

This article set out to explain a set of economic facts, to explain the organization adopted by a particular group in exploiting the resources of its area, and the argument has been conducted almost solely in economic terms—the play of the market, of existing structures of organization, and of technical potential. Yet simple economic argument will seldom explain even the simplest of economic adaptations. Men in their daily work respond to the depths of their individual and social natures and not merely to the opportunities of resources, techniques, and markets. And nowhere, perhaps, more than among a people whose response is rooted in tradition and whose daily economic life is shot with emotional, and even religious, expression. The explanation of the peculiarities of Highland economic behaviour must lie partly—how much is debatable—in the depths of group temperament; the desperate attachment to land, technical conservatism, the desire to wander and yet to keep an old home, expression in varied activity—these are more than passing obstructions to economic rationality. Yet, if the argument of the previous pages is correct, extra-economic purpose was powerfully aided by certain of the facts of market, technique, and demography; these, the economic facts, must surely be an important part of the whole explanation.

¹ Whether this money went in rent or in direct purchase, it created the funds that would support the steady purchase of the means of subsistence (which would often be provided by the landlords). The extra money might not break the barter system (i.e. of labour, or fish, exchanged for grain) but it made subsistence more secure.

The Agricultural Activities of John Wilkinson, Ironmaster

By W. H. CHALONER

IT is not generally known that besides being a large-scale industrialist, John Wilkinson (1728-1808), the celebrated ironmaster, was also one of the "spirited proprietors" who appear so frequently in agricultural history during the latter half of the eighteenth century. His youthful background was semi-rural, but his career as a large-scale landowner does not appear to have begun until the War of American Independence (1776-83), when it became difficult to satisfy public and private demands for cannon. Consequently his profits as an ironmaster accumulated rapidly, and some of them were invested in agricultural improvement. About 1777-8 he bought the bleak hill of Castlehead, near Grange-over-Sands in north Lancashire, then surrounded by a peaty marsh, and the adjacent Wilson House estate, with the double purpose of building a country residence on the former site, and "with a view of making iron from the peat with which the country so much abounded" on the latter.¹ The peat-smelting of iron, although technically successful, was however not an economic proposition, and his thoughts turned "to consider what other uses could be made of so extensive a tract, in particular whether it could not be made capable of cultivation."

The general nature of the tract Wilkinson undertook to improve was extremely discouraging. According to Sir John Sinclair, Bt, M.P., President of the Board of Agri-

culture, who honoured Wilkinson with a visit to Castlehead in 1805, it would have been called in Scotland a "flow moss." On the average about five feet of the first stratum consisted of a soft, spongy kind of peat, which made very poor fuel. Below this, however, the black peat was deep (15 feet and over) and of excellent quality. After these two layers the bottom was "a fine strong blue clay," capable of being used as a top dressing after being burnt in small heaps with peat, but otherwise "unfriendly to vegetation until it has been long exposed to, and ameliorated by the atmosphere."²

Wilkinson's first attempts to improve about four or five acres of this waste marsh, on which animals could only be pastured in frosty weather, began in 1778 and were unsuccessful. The surface was breast-ploughed and then burnt. But the drainage trenches were cut too far apart and the "proper management" of the sod-kilns in which lime for spreading on the moss could be produced "was not then understood."³ Later Wilkinson tried a more complex system of drainage trenches which proved more successful.⁴ Special spades and ploughs were used, and the great ironmaster's inventive brain even produced a special 10-inch circular patten for the hind-feet of the horses used in the work of reclamation, so that they could be employed even in the soft parts of the moss.⁵ "Before this invention," remarked Sir John Sinclair, "the ploughs were wrought by the strength

¹ *Communications to the Board of Agriculture*, v, Part 1, 1806, p. 2; John Wilkinson to James Watt, 6 May 1776 (Boulton and Watt Coll., Birmingham Public Library).

² *Communications*, p. 2.

³ *Communications*, p. 3. Sir John Barrow (1764-1848), who visited the Castlehead area about 1781-2, states that Wilkinson had met with success "mostly and simply by driving in stakes to obstruct the tide both in its flow and ebb."—*An Autobiographical Memoir*, 1847, p. 229.

⁴ *Communications*, pp. 3-5. Wilkinson also narrowed and altered the courses of some brooks in the Castlehead area, "by which the flux of the tide, in the space of about eight years, has raised the lands near six feet."—J. Holt, *General View of the Agriculture of the County of Lancaster*, 2nd ed., 1795, p. 88.

⁵ *Communications*, pp. 4-5 (plate: "Mr. Wilkinson's Horse Patten").

of men till the moss had consolidated." By 1805, after an elaborate rotation of crops and a considerable and costly spreading of clay, sand, or mould on the surface, the reclaimed moss had produced hay, turnips, oats, winter rye, barley, and potatoes, the latter being "of a quality peculiarly excellent."¹ It is typical of the man that he threw himself wholeheartedly into this new sphere of activity, for in 1787 he was the only person who took the trouble to send the Royal Society of Arts samples of Chinese hemp fibre in "a state fit for the purpose of manufactures" after that Society had distributed the seeds of the plant to a large number of persons for experimental growth.²

The extent of land Wilkinson reclaimed was variously estimated at 500 Lancashire acres and 1,000 statute acres.³ In 1778 the moss was with difficulty let to local farmers at a penny per acre; by 1805 those portions of the moss which Wilkinson had only recently improved were worth between 30s. and 40s. an acre per annum, while land which he had reclaimed in the 1780's produced an annual rent of between £3 and £4 per acre.⁴ Nevertheless critics said "that Mr Wilkinson might have bought, at a cheaper rate, the best land in Lancashire." Sir John Sinclair commented: "Perhaps so. But Mr Wilkinson must derive much higher satisfaction from the plan he has

pursued. By so doing, he has furnished employment to numbers of industrious people;—he has raised great quantities of food for man, where nothing, but for his exertions, would have been produced . . . and . . . he is justly entitled to be ranked among the best friends to the agricultural interests of the country."⁵

In 1791 Wilkinson was busy finishing off a big programme of tree-planting at Castlehead which had extended over a number of years.⁶ In 1796 the landowners of Cartmel parish obtained an Act (36 Geo. III, cap. 64) for enclosing commons, waste lands, and mosses in the constituent townships of the parish, a process which lasted until the final award in 1810. Both John Wilkinson (Castlehead was in Allithwaite Upper township) and his brother William, who then had a house at Flookburgh, had interests in the enclosure. They were in fact the third (£1,880) and fifth (£1,415) largest recipients respectively of the Cartmel common land divided out by the Commissioners appointed under the act.⁷ According to Stockdale, on the 12th of October 1798 William Wilkinson bought 28 acres for £685 "behind and upon Newton Fell" in Upper Allithwaite township at a public auction, while three days later, John, not to be outdone, requested the commissioners "that he might have an allotment

¹ *Communications*, p. 6. Wilkinson also grew chicory at Castlehead, presumably for horse fodder.—Holt, *op. cit.*, p. 72.

² *Trans. Royal Society of Arts*, v, 1787, pp. 171–2. It is not clear whether this hemp was grown at Broseley in Shropshire or on one of his other estates. Wilkinson's report on the product was unfavourable.

³ *Communications*, p. 7; Holt, *op. cit.*, p. 105. The Lancashire acre varied. One, based on 7½ yards to the rod, was equal to 1·86 statute acres; another, based on a 7-yard rod, was equal to 1·62 acres.

⁴ *Communications*, pp. 3, 7. The great rise in the value of the land during the early 1790's is shown by the fact that in 1795 John Holt had noted: "Mr Wilkinson's improved moss land was, before draining, worth from 7 to 10s. per acre, is now worth from 4l. to 5l. per acre of the large measure."—*op. cit.*, p. 47 n.

⁵ *Communications*, p. 8. Wilkinson's methods were later applied to Trafford Moss in south Lancashire (Holt, *op. cit.*, p. 105). His schemes altered the landscape of the Furness wastes: "... before the drainage, the windows of the third story of Mr Wilkinson's house just appeared from a certain point; but from that place, at present, the windows on the first floor are plainly seen . . . the fall of the moss is about four feet and a half."—Holt, *op. cit.*, p. 106 n.

⁶ Draft letter of 10 Oct. 1791, John Wilkinson to Dr Priestley.—Warrington Public Library, Priestley–Wilkinson Correspondence.

⁷ For an account of the enclosure, see J. Stockdale, *Annales Caermoelesenses*, 1872, pp. 326–84. Stockdale had access to the Commissioners' minute books, and one of them, covering the period from 25 July 1796 to 3 July 1803, has recently been deposited in the Lancashire County Record Office, County Hall, Preston.

at or upon Wilson Hills, as it would be an advantage to his estate." Besides the 51 acres allotted to him at Wilson Hills John came into possession of over 40 acres at Blawith and Castlehead Moss in Broughton township, while William received allotments at Holker Bank and Winder Moor in Lower Holker township.¹ The Commissioners' award under the Act shows that the two brothers received other allotments by virtue of their status as local landowners; it is interesting to note that William Wilkinson bought out a number of small proprietors.²

Not content with these local acquisitions, "Mr Wilkinson of Castlehead, a gentleman of fortune, patriotism, and universal knowledge," became interested during 1786 in a vaster design put forward by John Jenkinson of Yealand. Jenkinson's plan was for "recovering from the dominion of Neptune that extensive tract called Lancaster and Milthorp (i.e. *Milnthorpe*) Sands" by diverting the Kent and other lesser rivers.³ After a survey of the area, which seemed to him to present few obstacles to the execution of the plan, Wilkinson proposed the opening of a subscription list and offered to lead it with £50,000 if the neighbouring landowners would raise the remaining £100,000 between them. But even though his estimate of £150,000 for reclaiming over 32,000 acres was considered to be unduly pessimistic by "many well-informed gentlemen," the plan never materialized, being "defeated, by a difference of opinion amongst individuals, claims of the lords of manors, &c."⁴

It was not only at Castlehead that Wilkinson undertook agricultural improvements. In

1792 he bought the Brymbo Hall estate, and later added to it a number of smaller estates and farms in the bleak township of Brymbo in Denbighshire, north Wales. On his death in 1808 the whole concentration amounted to about 872 acres.⁵ The original soil was naturally poor, "being a hungry clay on a substratum of yellow rammel or coal schist."⁶ By good tillage and heavy manuring with lime (10 tons to the acre) Wilkinson so improved crop-yields that the township's corn-tithes increased by £40 per annum in value. "A crowned head had assisted him in making his compost manures. Offa, King of Mercia, had employed men to bring together the soil; and Mr Wilkinson went to the expense of lime, to be mixed with it. Large cavities, of the shape of inverted cones, were cut at convenient distances, in Offa's dyke, which runs across Brymbo farm. The cavities were filled up with limestone and coal and then burnt. . ."

At Brymbo, too, he experimented with powdered "sweet coal," i.e. coal with a very low sulphur content, as a top-dressing for grasslands. As compared with land manured with a compost of soil and lime, the area so treated produced the best and earliest grass.⁷

His lime-making activities in north Wales were not, however, confined to the township of Brymbo. At some date before 1798 he had secured a lease for forty-two years of land containing limestone adjacent to Lord Derby's estate at Hope in Flintshire. Here he had erected large lime-kilns, of which he wrote: ". . . my present lime work being so near coal of my own . . . enables me to sell it on easy terms to the country and to meet any competition whatever."⁸

¹ Stockdale, *op. cit.*, pp. 334, 340-1.

² Award of 8 February 1810 (Lancashire County Record Office, Preston), pp. 76, 100, 105, 431 ff., 434, 455.

³ Holt, *op. cit.*, pp. 88-94; *Gentleman's Magazine*, LVI, 1786, pt. ii, p. 1140.

⁴ Holt, *op. cit.*, pp. 90, 88.

⁵ For details of these, see A. N. Palmer: 'John Wilkinson and the Old Bersham Ironworks', *Trans. Hon. Soc. of Cymmrodorion* (Session 1897-8), 1899, p. 40.

⁶ Davies, *Agriculture of North Wales*, 1810, pp. 281-2. Of Wilkinson's Brymbo estate about 150 acres were originally "wild heath, till then abounding only in springs and furze." Palmer noted that the Waen Farm (76½ acres) was "enclosed from the common."—*op. cit.*, p. 40.

⁷ Davies, *op. cit.*, p. 282.

⁸ *Ibid.*, pp. 297-8.

⁹ Wilkinson to Mr Alty, Knowsley, Lincs, 9 May 1798 (Lancs County Record Office, DDK 447/9). When Wilkinson was granted a 7-year mining lease of land at Hope by Lord Derby in 1798, it was agreed

Wilkinson's last will and testament provides some evidence that his investments in agriculture extended to South Staffordshire. "... The late William Johnson's cash account with me is not settled, and the same cannot be adjusted without reference to the cashbook and diary of the said William Johnson... it is supposed they contain the transaction of my farm at Bradley blended with an adjoining one... held by William Johnson... and the produce of both farms were (*sic*) received for by said William Johnson."¹

Attention has often been called to Wilkinson's role as a pioneer in the use of agricultural machinery. In 1798 the six counties of north Wales contained only two threshing machines. One of these, "of a cumbersome and expensive construction," was employed by Wilkinson on his Brymbo estate. Even more remarkable was the fact that his

machine was driven by steam power. The use of agricultural machinery was stimulated by the high wage rates typical of war-time conditions, and by 1810 improved threshing machines had become "too common to be enumerated" in north Wales.²

The general impression derived from a study of Wilkinson's farming and reclamation activities is therefore of large-scale, long-term 'ploughing' of industrial and mining profits into agriculture on marginal lands at a time when a rapidly expanding population and Government expenditure in connection with a series of wars (1776-83, 1793-1802, 1803-15) resulted in a rising price-level, a buoyant economy, and, towards the end, a considerable degree of inflation. Wilkinson was perhaps fortunate in that he did not live to see the depression in agriculture during the years immediately after 1815.

that he was not to burn any of the limestone brought out of the lead ore diggings: "he must be bound that he will not root and mangle too much of the rocks to the disadvantage of his Lordship... the old tenants... complain heavily that if Mr. Wilkinson will take all the rocks they will be entirely deprived of their living."—Edward Jones, Hope, Flintshire, to Mr Alty, Knowsley, Lancs, 3 July 1798, Lancs County Record Office, DDK 447/8/3 and 447/8/5.

¹ Document A, date-lined Bradley, 26 July 1804, subjoined to will dated 29 Nov. 1806, General Register Office, Somerset House, London. William Johnson's widow, Mrs Mander, was to be compelled by Wilkinson's executors to produce the accounts.

² Davies, *op. cit.*, pp. 121-2.

NOTES AND COMMENTS (*continued from page 30*)

numbers. Down to 1870-1875 all the hills and mountains of Great Britain had been tenanted as 'hill rights' or common 'hill run', often mainly for the production of three- to four-year-old wether sheep which were sold fat off the hill at that age. They did not cost the farmer much except during the first winter, and he had three to four years' wool off them. But between 1870 and 1875 there sprang up a universal desire amongst the landed gentry to 'produce a shoot' on their moors and mountains, stimulated by the example of Edward, Prince of Wales, afterwards Edward VII, who was passionately fond of shooting and stalking. The advent of new types of effective sporting guns (both shot and rifle

type) encouraged a desire for big 'bags' of grouse from the moors and of stags on the Highland mountains. Everybody wanted to take a 'shoot', and to let this land was much more profitable than giving it free for sheep to tenant farmers. In consequence, the landlords took away the moors and the mountains and turned them into vast grouse moors, and in Scotland into deer forests. Very often no sheep were allowed at all. Sometimes, as occurs to this day on all Derbyshire grouse moors, the sheep are stinted in numbers, i.e. every farmer must have his sheep counted out on to the moor through a sort of stone 'trap door' by the Head Keeper on a given date. And

(*continued on page 57*)

List of Books and Articles on Agrarian History issued since September 1955¹

Compiled by JOAN THIRSK

BOOKS AND PAMPHLETS

- ARMSTRONG, J. R., and HOPKINS, P. G. H. *Local Studies: a Pamphlet addressed by its authors to all those interested in local studies whether tutors or students in adult classes or school-teachers.* W. E. A. 1955.
- ASHTON, T. S. *An Economic History of England: the eighteenth century.* Methuen. 1955.
- BAGLEY, J. J. *A History of Lancashire, with maps and pictures.* Finlayson.
- BARLEY, M. W. (ed.). *Documents relating to the Manor and Soke of Newark-on-Trent.* Thoroton Soc. Records Series, vol. XVI. 1955.
- BELL, VICARS. *To meet Mr Ellis: Little Gaddesden in the Eighteenth Century.* Faber.
- BIRD, W. H. *A History of the Institute of Brewing.* Institute of Brewing, London.
- BRIDBURY, A. R. *England and the Salt Trade in the later Middle Ages.* O.U.P. 1955.
- Calendar of Inquisitions post mortem and other analogous documents preserved in the Public Record Office, 1485-1509.* H.M.S.O.
- DALE, J. K. *Introducing local studies.* Dent.
- DICKENS, A. G., and MACMAHON, K. A. *A Guide to regional studies on the East Riding of Yorkshire and the City of Hull.* Depts. of Adult Education and History, Hull University.
- DURHAM UNIVERSITY (Durham Colleges, Depts. of Palaeography and Diplomatic). *Handlist of Halmote Court Books, Palatinate of Durham and Bishopric estates in The Prior's Kitchen, The College, Durham.* The College, Durham (typescript).
- GREEN, DAVID. *Gardener to Queen Anne: Henry Wise (1653-1738) and the formal garden.* O.U.P.
- HAMMOND, R. J. *Food. Vol. II: Studies in Administration and Control* (History of the Second World War. U.K. civil series, general series). H.M.S.O.
- HARDEN, D. B. (ed.). *Dark-Age Britain: Studies presented to E. T. Leeds, with a bibliography of his works.* Methuen.
- HARVEY, NIGEL. *Ditches, Dykes, and Deep Drainage.* Young Farmers' Club Booklet, no. 29. Evans Bros.
- JENKINS, J. G. *A Handlist of the Stowe Collection in the Huntington Library, California.* Bucks. Rec. Soc. Lists and Indexes, no. 1.
- JONES, T. I. J. (compiler). *Exchequer Proceedings concerning Wales in tempore James I: abstracts of bills and answers and inventory of further proceedings.* Wales U.P. 1955.
- KOSMINSKY, E. A. *Studies in the Agrarian History of England in the Thirteenth Century.* Blackwell.
- MACINNES, C. M., and WHITTARD, W. F. (eds.). *Bristol and its adjoining counties.* British Assoc. for Advancement of Science. 1955.
- MACKAY, F. F. (ed.). *MacNeill of Carskey, his estate journal, 1703-1743.* Macdonald, Edinburgh. 1955.
- MEATES, G. W. *Lullingstone Roman Villa.* Heinemann. 1955.
- MURRAY, KEITH A. H. *History of the Second World War: Agriculture.* H.M.S.O. 1955.

¹ The date of publication is 1956 unless otherwise stated. The compiler wishes to thank Mr George Green for help with this bibliography.

- OXLEY, J. E. *Barking Vestry Minutes and other parish documents*. Benham, Colchester. 1955.
- PETERSSON, R. T. *Sir Kenelm Digby, the ornament of England, 1603-1665*. Cape.
- PLUMB, J. H. (ed.). *Studies in Social History: a tribute to G. M. Trevelyan*. Longmans, Green. 1955.
- PUGH, R. B., and CRITTALL, ELIZABETH (eds.). *The Victoria History of Wiltshire*, vols. II & III. O.U.P. for Institute of Historical Research. 1955, 1956.
- ROSS, CHARLES. *The Estates and Finances of Richard Beauchamp, Earl of Warwick*. Dugdale Soc. Occ. Paper no. 12.
- RUSSELL, Sir E. JOHN. *The Land called me: an autobiography*. Allen and Unwin.
- RUSSELL, REX C. *The 'Revolt of the Field' in Lincs. The Origins and early History of Farm Workers' Trade Unions*. Lincs. Co. Committee, Nat. Union Agric. Workers.
- SALZMAN, L. F. (ed.). *Ministers' Accounts of the Manor of Petworth*. Sussex Rec. Soc., vol. LV. 1955.
- SLADE, C. F. (ed.). *The Leicestershire Survey, c. A.D. 1130; a new edition*. Univ. Coll. of Leicester, Dept. of English Local History, Occ. Paper no. 7.
- STANFORD, J. K. *British Friesians: a History of the Breed*. Max Parrish.
- THOMAS, A. CHARLES. *Excavations at Gwiltian, Cornwall, 1955: the early Christian settlement, the Bronze Age barrow group, and a mediaeval manor*. Lowenac, Camborne (Cornwall), West Cornwall Field Club.
- WILKINSON, OLGA. *The agricultural revolution in the East Riding of Yorkshire*. East Yorks Local History Society Publication no. 5. 10 Priory Street, Micklegate, York.
- WILLIAMS, DAVID. *The Rebecca Riots: a study in agrarian discontent*. Wales U.P. 1955.
- WILLIAMS, N. J. (ed.). *Collectanea*. Wilts. Archaeolog. Soc. Rec. Branch, vol. XII.
- WILLIAMS, W. M. *The Sociology of an English Village: Gosforth*. Routledge and Kegan Paul.
- WINGFIELD-STRATFORD, ESMÉ. *The Squire and his Relations*. Cassell.
- WOODCOCK, AUDREY M. *Cartulary of the Priory of St Gregory, Canterbury*. Camden Third Ser., vol. LXXXVIII.

ARTICLES

- ABRAHAM, E. MITFORD. *Windmills*. Agriculture, vol. LXIII, no. 3.
- ALCOCK, LESLIE. *The Hill-fort in Cwrt-yr-Ala Park, near Dinas Powis (Glam.): I. The Defences*. Bull. Board Celtic Studies, vol. XVI. 1955.
- ANDREWS, J. H. *Some Statistical Maps of Defoe's England*. Geographical Studies, vol. III.
- ANDREWS, J. H. *The Trade of the Port of Faversham, 1650-1750*. Archaeologia Cantiana, vol. LXIX. 1955.
- ARMYTAGUE, W. H. G. *Manea Fen: an experiment in agrarian communitarianism, 1838-1841*. Bull. John Rylands Library, vol. XXXVIII.
- BAGENAL, H. *The Smaller House and its Significance*. Antiquity, no. 116, 1955.
- BALCH, W. M. *Interview with Frank Ruffel of Park Gate Farm, Gestingthorpe*. Essex Review. January.
- BARKER, H. L. *The Excavation of a Medieval Enclosure at Claxby, near Alford, 1948*. Lincs. Archit. and Archaeolog. Soc. Rep. and Papers, n.s., vol. VI. 1955.
- BARRATT, D. M. (ed.). *Ecclesiastical Terriers of Warwickshire Parishes. Vol. I. Parishes A to Li*. Dugdale Soc. Publications, vol. XXII. 1955.
- BATHO, GORDON R. *Syon House: the first two hundred years*. Trans. London & Middlesex Archaeolog. Soc., vol. XIX.
- BEECHAM, H. A. *A Hanging Puppet in North Oxfordshire*. Folklore, vol. LXVII.
- BEECHAM, H. A. *A Review of Balchs as Strip Boundaries in the Open Fields*. Agric. Hist. Rev., vol. IV.
- BOOTH, J. R. *The Duke of Northumberland's Estates*. Agriculture, vol. LXIII, no. 4.
- BOWDEN, P. J. *Wool Supply and the Woollen Industry*. Econ. Hist. Rev., 2nd Ser., vol. IX.

- BREAY, Rev. J. *George Henderson, blacksmith of Crosby Garrett, and his account book, 1838-1861*. Trans. Cumb. & Westm. Antiq. & Archaeolog. Soc., vol. LV.
- BRETTON, R. *Wood Hall, Skircoat*. Trans. Halifax Antiq. Soc. 1955.
- BRUNDRETT, E. *Romney Marsh Sheep*. Wool Knowledge, vol. III, no. 11.
- BU'LOCK, J. D. *Possible Remains of Celtic Fields at Kelsall in Cheshire*. Trans. Lancs. & Cheshire Antiq. Soc., vol. LXIV. 1954.
- BURSTALL, E. BRYAN. *A Monastic Agreement of the Fourteenth Century*. Norfolk Archaeology, vol. XXXI. 1955.
- CAMERON, KENNETH. *Work on Place Names in Lincolnshire, a preliminary discussion*. Lincs. Historian, vol. II.
- CAMPBELL, MILDRED. *English Emigration on the Eve of the American Revolution*. Amer. Hist. Rev., vol. LXI. 1955.
- COOPER, J. P. *The Counting of Manors*. Econ. Hist. Rev., 2nd Ser., vol. VIII.
- COPPOCK, J. T. *The Statistical Assessment of British Agriculture*. Agric. Hist. Rev., vol. IV.
- CROWLEY, D. W. *The 'Crofters' Party', 1885-1892*. Scottish Hist. Rev., vol. XXXV, no. 120.
- DARLINGTON, IDA. *The Middlesex Deeds Registry*. Trans. London & Middlesex Archaeolog. Soc., vol. XIX.
- DAVIDSON, THOMAS. *Elf-Shot Cattle*. Antiquity, no. 119.
- DAVIDSON, THOMAS. *Wool in Folklore—Part I*. Wool Knowledge, vol. III, no. 11.
- DAVIES, G. L. *The Parish of North Uist*. Scottish Geogr. Mag., vol. LXXII.
- DAVIES, MARGARET. *Rhosili Open Field and Related South Wales Field Patterns*. Agric. Hist. Rev., vol. IV.
- DAVIES, STELLA. *The Cheshire Dairy*. Cheshire Historian, no. 6.
- DESBOROUGH, V. F. *Bee boles and beehouses*. Archaeolog. Cantiana, vol. LXIX.
- DICKENS, A. G. *Estate and Household Management in Bedfordshire c. 1540*. Beds. Hist. Rec. Soc., vol. XXXVI.
- DICKINS, K. W. *The Muniments of the Sussex Archaeological Trust, Guide to the Calendars*. Sussex Archaeolog. Coll., vol. XCIII. 1955.
- DIMBLEBY, G. W. *Pollen Analysis as an aid to the Dating of Prehistoric Monuments*. Proc. Prehist. Soc. for 1954, N.S., vol. XX. 1955.
- ENRIGHT, B. J. *Rawlinson's proposed History of Middlesex, 1717-1720*. Trans. London & Middlesex Archaeolog. Soc., vol. XIX.
- FARMER, D. L. *Some Price Fluctuations in Angevin England*. Econ. Hist. Rev., N.S., vol. IX.
- FARRAR, R. A. H. *Archaeological Fieldwork in Dorset in 1953 and 1954*. Proc. Dorset Nat. Hist. & Archaeolog. Soc., vol. LXXVI.
- FINBERG, H. P. R. *The Gostwicks of Willington*. Beds. Hist. Rec. Soc., vol. XXXVI.
- FINBERG, H. P. R. *An Agrarian History of England*. Agric. Hist. Rev., vol. IV.
- FISHER, F. N. *Egginton Court Rolls, 1306-7-1311-12*. Jnl Derbyshire Archaeolog. & Nat. Hist. Soc., vol. LXXV. 1955.
- FOWLER, J. *The Manor Court Roll of Abbot John Meere, 1515-1516*. Proc. Dorset Nat. Hist. & Archaeolog. Soc., vol. LXXVII.
- FOX, AILEEN. *Huts and Enclosures on Gripper's Hill in the Avon valley, Dartmoor*. Devon Ass. Rep. & Trans., vol. LXXXVII. 1955.
- FRANCE, R. SHARPE. *Two Customals of the Manor of Cockerham, 1326 and 1483*. Trans. Lancs. & Cheshire Antiq. Soc., vol. LXIV. 1954.
- FUSSELL, G. E. *Four Centuries of Cheshire Farming Systems, 1500-1900*. Trans. Hist. Soc. Lancs. & Cheshire, vol. CVI. 1955.
- FUSSELL, G. E. *The Early Railway Transport of Milk*. Dairy Engineering, July and August.
- FUSSELL, G. E. *Nineteenth-Century Ice Importation*. Notes and Queries, March and August.
- FUSSELL, G. E. *Potatoes to the Rescue in 1894*. Suffolk Review, vol. I.
- FUSSELL, G. E. *The Elizabethan and early Stuart Dairy Farmer*. Jnl British Dairy Farmers' Assoc., vol. LX.
- FUSSELL, G. E. *Estate and Farm Roads in the Old Days*. Agriculture, vol. LXIII, no. 6.

- FUSSELL, G. E. *Local Variety in British Farm Carts and Waggon*s. Geogr. Mag., September.
- FUSSELL, G. E. *Four Centuries of Nottinghamshire Farming, 1500-1900, Part I*. The Nottinghamshire Countryside, vol. XVII.
- FUSSELL, G. E. *Superstitions of the Cowhouse and Dairy*. Milk Producer, vol. III, no. 10.
- GARDNER, E. M. *On Mill Hunting*. Amateur Historian, vol. II, no. 11.
- GARDNER, E. M. *Bex Mill in Heyshott*. Sussex Notes and Queries, vol. XIV, nos. 11 and 12.
- GAZLEY, JOHN G. *Arthur Young, agriculturist and traveller, 1741-1820. Some biographical sources*. Bull. John Rylands Library, vol. XXXVII. 1955.
- GIRARD, P. J. *Items of Interest from History of Castel Parish, mainly covering seventeenth and eighteenth century*. La Société Guernésiaise Rep. and Trans., vol. XV, part V. 1955.
- GODBER, JOYCE. *Willington*. Beds. Mag., vol. V, no. 34.
- GRESHAM, C. A., and HEMP, W. J. *Rhiwlas*. Archaeologia Cambrensis, vol. CIV. 1955.
- GROVES, R. *Fifty Years of Union. Jubilee of National Union of Agricultural Workers*. Farmers' Weekly, 11 May.
- HARVEY, NIGEL. *Relics of a Great Achievement: some Veteran Deep-Drainage Schemes*. Jnl Land Agents' Soc., vol. LIV. 1955.
- HARWOOD, H. W. *Hanroyd in Midgley*. Trans. Halifax Antiq. Soc. 1955.
- HENDERSON, CHARLES. *The 109 Ancient Parishes of the Four Western Hundreds of Cornwall, part I*. Jnl Roy. Inst. Cornwall, N.S., vol. II. 1955.
- HOGG, A. H. A. *A Fourteenth-Century House-Site at Cefn-Y-Fan, near Dolbenmaen, Caernarvonshire*. Caern. Hist. Soc. Trans., vol. XV. 1954.
- HORSEFIELD, J. K. *Inflation and Deflation in 1694-1696*. Economica, N.S., vol. XXIII.
- HOSFORD, W. H. *Digby in 1801. The Anatomy of a Lincolnshire Village*. Lincs. Historian, vol. II.
- HOSKINS, W. G. *Fieldwork in Local History*. Amateur Historian, vol. III, no. 1.
- HOWELLS, B. E. *Pembrokeshire Farming circa 1580-1620*. Nat. Library of Wales Jnl, vol. IX. 1955.
- IMRAY, JEAN. *The Boucherett Family Archives*. Lincs. Historian, vol. II.
- JERVOISE, E. *The Manor of Barton, Shaftesbury*. Proc. Dorset Nat. Hist. & Archaeolog. Soc., vol. LXXVI.
- JOHNSTONE, KATHARINE H. *Early Potatoes in Cornwall*. Agriculture, vol. LXIII, no. 3.
- JONES, G. P. *The Poverty of Cumberland and Westmorland*. Trans. Cumb. & Westm. Antiq. & Archaeolog. Soc., vol. LV.
- JONES, GLANVILLE R. J. *The Distribution of Medieval Settlement in Anglesey*. Trans. Anglesey Antiq. Soc. & Field Club. 1955.
- KEMPSON, E. G. H. *The Wheelwright's Shop*. Wilts. Archaeolog. & Nat. Hist. Mag., vol. LVI. 1955.
- KENYON, G. H. *Kirdford Inventories, 1611 to 1776, with particular reference to the Weald Clay Farming*. Sussex Archaeolog. Coll., vol. XCIII. 1955.
- KERRIDGE, E. *Turnip Husbandry in High Suffolk*. Econ. Hist. Rev., 2nd Ser., vol. VIII.
- KETCHLEY, C. P. *Vagrancy*. Amateur Historian, vol. II, no. 10.
- KETCHLEY, C. P. *Apprentices—trade and poor*. Amateur Historian, vol. II, no. 12.
- KIRK, MAURICE. *The Vale of York. The Evolution of a Landscape*. Geography, vol. XL. 1955.
- LANGDON, A. J. *Victorian Landowners*. Amateur Historian, vol. II, no. 8. 1955.
- LANGSTON, J. N. *Old Catholic Families of Gloucestershire: the Casseys of Wightfield in Deerhurst*. Bristol & Glos. Archaeolog. Soc. Trans., vol. LXXIV.
- LENNARD, R. *The Demesnes of Glastonbury abbey in the Eleventh and Twelfth Centuries*. Econ. Hist. Rev., 2nd Ser., vol. VIII.
- LEWIS, M. GWYNETH. *The Printed Maps of Cardiganshire, 1578-1900, in the National Library of Wales*. Ceredigion, vol. II. 1955.
- LEWIS, T. *Seeborn's Tribal System of Wales*. Econ. Hist. Rev., 2nd Ser., vol. IX.
- LINDLEY, E. S. *Kingswood Abbey, its lands and mills*. Bristol & Glos. Archaeolog. Soc. Trans., vol. LXXIV. 1955.

- LINNELL, C. D. *The Horsekeeper and Plough Team*. Beds. Mag., vol. v, no. 34. 1955.
- LIVERSIDGE, JOAN, and BYWATERS, Canon F. J. *Archaeological Notes. A Hoard of Roman British Ironwork from Worlington*. Proc. Cambridge Antiq. Soc., vol. XLIX.
- LLLOYD-JOHNES, HERBERT. *The Lesser Country Houses of Cardiganshire (contd.)*. Ceredigion, vol. II. 1955.
- LUXTON, CHARLES. *The "Tun" by the Creedy: the earliest Saxon Settlement at Crediton*. Devon Assoc. Rep. & Trans., vol. LXXXVII. 1955.
- MACKIE, M. *Two Half-Centuries of Expansion*. Scottish Agriculture. Winter 1955-6.
- MARTIN, Rev. W. KEBLE. *A Short History of Coffinswell*. Devon Assoc. Rep. & Trans., vol. LXXXVII. 1955.
- MATHESON, COLIN. *Gamebook Records of Pheasants and Partridges in Wales*. Nat. Library of Wales Jnl, vol. IX. 1955.
- MAYNE, L. BRUCE. *Tourists of the Past, with a select Bibliography of Tours in Great Britain*. Amateur Historian, vol. III, no. 1.
- MILLER, EDWARD. *Redesdale*. Proc. Soc. Antiq. Newcastle-upon-Tyne, vol. I, no. 9. 1955.
- MINCHINTON, W. E. *Agriculture in Dorset during the Napoleonic Wars*. Proc. Dorset Nat. Hist. & Archaeolog. Soc., LXXVII.
- MINGAY, G. E. *Estate Management in Eighteenth-Century Kent*. Agric. Hist. Rev., vol. IV.
- MINGAY, G. E. *The Agricultural Depression, 1730-1750*. Econ. Hist. Rev., 2nd Ser., vol. VIII.
- MORRIS, LAURENCE E. *A Custumal of Ruislip*. Trans. London & Middlesex Archaeolog. Soc., vol. XIX.
- MUNSLow, F. W. *Field Names*. Amateur Historian, vol. II, no. 12.
- NATTRASS, MARY. *Witch Posts and Early Dwellings in Cleveland*. Yorks. Archaeolog. Jnl, part 153.
- OSCHINSKY, D. *Medieval Treatises on Estate Management*. Econ. Hist. Rev., 2nd Ser., vol. VIII.
- PARKER, R. A. C. *Coke of Norfolk and the Agrarian Revolution*. Econ. Hist. Rev., 2nd Ser., vol. VIII. 1955.
- PARKER, R. A. C. *Direct Taxation on the Coke Estates in the Eighteenth Century*. Eng. Hist. Rev., vol. LXXII, no. 279.
- PAWSON, H. CECIL. *He put the best to the best (Robert Bakewell)*. Farmers' Weekly, 2 Dec. 1955.
- POSTAN, M. *Glastonbury Estates in the Twelfth Century: a Reply*. Econ. Hist. Rev., 2nd Ser., vol. IX.
- POTTER, SIMON. *Cheshire Place Names*. Trans. Hist. Soc. Lancs. & Cheshire, vol. CVI. 1955.
- PRIEST, SYLVIA C. *A Bolling Household Book, 1669-1687*. Bradford Antiquary, vol. XXXVIII.
- PRIESTLEY, J. H. *The Growth of a Township—Soyland*. Trans. Halifax Antiq. Soc. 1955.
- QUAYLE, THOMAS. *Butter Down the Ages*. Milk Producer, vol. III, no. 7.
- QUAYLE, THOMAS. *Milk Down the Ages*. Ibid., no. 8.
- RAVENHILL, W. L. D. *The Settlement of Cornwall during the Celtic Period*. Geography, vol. XL. 1955.
- REANEY, P. H. *A Saxon Landowner of Essex Birth*. Trans. Essex Archaeolog. Soc., N.S., vol. XXV. 1955.
- REANEY, P. H. *Clovesho and Mildenhall*. Suffolk Inst. of Archaeology, vol. XXVI. 1955.
- RIDGWAY, MAURICE H. *The Wettenhall Parish Book*. Cheshire Historian, no. 6.
- ROBERTSHAW, W. *The Manor of Tong*. Bradford Antiquary, vol. XXXVIII.
- RODGERS, H. B. *Land Use in Tudor Lancashire*. Trans. & Papers Inst. Brit. Geographers, no. 21. 1955.
- RODGERS, H. B. *The Market Area of Preston in the Sixteenth and Seventeenth Centuries*. Geographical Studies, vol. III.
- ROWELL, C. W. *The Story of Holkham*. Agriculture, vol. LXIII, no. 1.
- SALAMAN, REDCLIFFE N. *The Oxenoble Potato: a Study in Public-House Nomenclature*. Trans. Lancs. & Cheshire Antiq. Soc., vol. LXIV. 1954.
- SCURFIELD, G. and MEDLEY, IRENE E. *An*

- Historical Account of the Vegetation in the Sheffield District: the Parish of Ecclesfield in 1637.* Trans. Hunter Archaeolog. Soc., vol. VII. 1955.
- SHACKLETON, WILLIAM. *Ponden and Ponden House.* Bradford Antiquary, vol. XXXVIII.
- SHEARMAN, PHILIP. *Ewell in 1577.* Surrey Archaeolog. Coll., vol. LIV. 1955.
- SHEPPARD, JUNE A. *A Danish River Diversion.* Yorks. Archaeolog. Jnl, part 153.
- SHERWOOD, LESLIE. *The Court Baron.* Amateur Historian, vol. II, no. 12.
- SMITH, C. S. *Ninety-Nine Years' Fight for Fencing.* Farmers' Weekly, 18 Nov. 1955.
- SMITHCORS, J. F. *Blaine's History of Veterinary Medicine to 1800.* Jnl Amer. Veterinary Medical Assoc., no. 128.
- TAYLOR, F. *Handlist of the Bagshawe Muments deposited in the John Rylands Library.* Bull. John Rylands Library, vol. XXXVII. 1955.
- THIRSK, JOAN. *Farming in Kesteven, 1540-1640.* Lincs. Archit. & Archaeolog. Soc. Rep. & Papers, N.S., vol. VI. 1955.
- THOMPSON, M. W. *Trial Excavations at Ropsley Grange, near Grantham, Lincolnshire.* Ibid.
- THOMPSON, REV. R. DENTON. *Farmanby and the Thompson family.* Trans. Cumb. & Westm. Antiq. & Archaeolog. Soc., vol. LV.
- TODD, A. C. *An Answer to Poverty in Sussex, 1830-45.* Agric. Hist. Rev., vol. IV.
- TURNER, A. G. C. *Some Old English Passages relating to the Episcopal Manor of Taunton.* Somerset Archaeolog. & Nat. Hist. Soc., vol. XCVIII. 1955.
- TYLER, CYRIL, *The Development of Feeding Standards for Livestock.* Agric. Hist. Rev., vol. IV.
- WALKER, MICHAEL L. *The Manor of Batailles and the Family of Saunders in Ewell.* Surrey Archaeolog. Coll., vol. LIV. 1955.
- WALNE, PETER. *A Catalogue of Inclosure Maps in the Berkshire Record Office.* Berks. Archaeolog. Jnl, vol. LIV. 1955.
- WALTON, JAMES. *Upland Houses. The Influence of Mountain Terrain on British Folk Building.* Antiquity, no. 119.
- WEBSTER, GRAHAM. *A Note on the Use of Coal in Roman Britain.* Antiquaries Jnl, vol. XXXV. 1955.
- WILLIAMS, A. BAILEY. *Some Aspects of Village Culture in Montgomeryshire in the latter part of the Nineteenth Century.* Trans. Powys Land Club, vol. LIII, part II. 1954.
- WILLIAMS, REV. H. FULFORD. *Ideford through the Centuries.* Devon Assoc. Rep. & Trans., vol. LXXXVII. 1955.
- WILLIAMS, NEVILLE. *The London Port Books.* Trans. London and Middlesex Archaeolog. Soc., vol. XVIII. 1955.
- WOLFFE, B. P. *The Management of English Royal Estates under the Yorkist Kings.* Eng. Hist. Rev., vol. LXXI, no. 278.
- WOOD, PETER. *Strip Lynchets at Bishopstone, near Swindon, Wilts., excavated in 1954.* Wilts. Archaeolog. & Nat. Hist. Mag., vol. LVI. 1955.
- WOODBIDGE, FRED. *Lower Dean Windmill.* Beds. Mag., vol. V, no. 36.
- WRIGHT, PHILIP. *East Anglian Windmills.* East Anglian Mag., Oct. 1955.
- WRIGHT, PHILIP. *Down on the Farm. A Brief Account of the Growth of Farm Mechanization.* Cadet Jnl, Feb., 1955.

NOTES AND COMMENTS (continued from page 51)

on a given date no sheep must remain outside on the moor. This has caused a great reduction in sheep numbers in many areas since 1870. At the same time, the great demand for a big shoot and a big 'bag' of game, without which no squire up to 1910 was happy or con-

sidered a fine fellow, probably caused farmers to take an added interest in their low ground root crops and to increase their productivity. For partridges live in root crops, and the bigger the yield the more pleased would be the shooting landlord or shooting tenant.

Book Reviews

L. F. SALZMAN (ed.), *Ministers' Accounts of the Manor of Petworth, 1347-53*. Sussex Record Society, Barbican House, Lewes, 1955. xxxiv+100 pp.

The annual accounts presented by reeves and bailiffs of manors are perhaps the most valuable source for the history of English rural economy during the period for which they are extant: that is, from the thirteenth century to the sixteenth. They supply particulars of the demesne husbandry with a fullness unsurpassed by any documents of the early 'modern' period. A beginner unacquainted with the structure of these accounts and the formulae used in accounting would find in the volume under notice an excellent approach to the subject. Five rolls of account for Petworth, translated into English, are printed here with a valuable introduction by the editor. These accounts are of particular interest because they cover the period of the Black Death. Moreover, they deal with a manor in lay hands, not one of those ecclesiastical properties which have so largely engaged the attention of historians. Mr Salzman calculates that the total death roll at Petworth at the height of the plague must have been near 300, an astounding figure, as he justly remarks, for a single manor and parish. How soon were the vacant holdings filled and the lord's receipts brought up to their earlier level? This is a question which cannot be answered from the material before us. A study of other manors suggests that recovery may have been more rapid than we might expect after so heavy a death-rate.

The husbandry of the Petworth demesne, as revealed in these accounts, has several points of interest. No wheat was grown, and very little barley. Some 45 acres carried rye, but 75 per cent of the arable was under oats, mostly "small oats," though a few acres of "large oats" were also grown. Mr Salzman is at a loss to explain this term. The bailiffs' accounts for the earldom of Devon, however, show that the large black oat was already, in

1287, being regularly grown alongside the older and smaller variety, which, in Devon at any rate, seems to have been identical with that known to botanists as *avena nuda*.

H. P. R. FINBERG

AXEL STEENBERG, *In Crackling Flames*. Arbog for Jysk Arkaeologisk Selskab, 1955, pp. 65-130 (in Danish with English summary).

The place of 'burning' techniques in primitive agriculture is of interest to the historian, the archaeologist, and the natural scientist. In this paper Dr Steensberg has collected together many examples of burning in connection with cultivation from all parts of the world. He points out that the aims of burning are as numerous as the methods employed. A varied selection of burning techniques and the type of cultivation following them is described, and illustrated by photographs and diagrams; and written accounts of burning techniques as old as the late Iron Age are discussed.

Steensberg's appreciation of the problems presenting themselves to the cultivators, and the way in which they have adapted the burning technique, is well shown in the following passage. "In Esthonia burning was most suitably practised on areas of good loose soil with a high humus content, and where there was not too much grass in the undergrowth. Where it was desired that the trees should shoot up quickly again, care had to be taken not to destroy the roots. Too severe burning would also prevent the growth of grass, and if too large an area was thoroughly burnt off, the trees were prevented from sowing their seed and the wood thereby from regenerating. There was therefore a risk of the area becoming heathland. The same was true if the topsoil was burnt to death."

The theory that grain cultivation arose in the Middle East is proposed, and it is shown how the use of burning techniques could have led to this type of cultivation. The theory

is to some extent supported by the findings of botanists working on the systematics of the cereal grasses.

Steensberg makes no attempt in this paper to trace the origins of these burning techniques beyond the limits of written record; but he points out that this enquiry already has been taken up by archaeologists and botanists.

The paper includes a comprehensive bibliography, and forms a valuable contribution to the study of burning techniques, gathering together as it does a large volume of information in a readable and accessible form.

J. W. FRANKS

Materialy po istorii zemledeliya SSSR. Akademiya nauk SSSR. Sbornik I, 1952, 631 pp. Sbornik II, 1956, 748 pp. 25 rubles 25 kopeks, and 30 rubles 35 kopeks respectively.

These are the first two collections of *Materials on the History of the Agriculture of the USSR*, a series which is intended to form a basis for a great general work covering the history of agriculture in the area which is now the USSR from the earliest times to the present day. This task is being undertaken by the Institute of History with the collaboration of other institutes of the USSR Academy of Sciences. The area to be dealt with, extending from the Baltic to the Pacific, from northern tundra to Central Asian deserts, accommodates a vast range of agricultural activity: semi-nomadic reindeer herding, dairy farming, mechanized grain-growing on an immensescale, cotton-growing, tea planting, and the cultivation of sub-tropical fruits. The time-scale is equally huge: from some of the earliest known cereals in Turkestan to the introduction of the tung tree in the 1920's.

The first volume, edited by Professor B. D. Grekov, deals with agriculture in the pre-feudal and feudal periods of Russian history, from perhaps 3000 B.C. to the first half of the nineteenth century A.D. For the most part, therefore, this volume has to be based on

archaeological material, since written sources on Russian agriculture only become at all abundant from the second half of the eighteenth century. The volume opens with a survey of the systems of farming which existed, mainly in southern European Russia and in parts of Central Asia, from the advent of agriculture to the first millennium A.D. Certain aspects of this survey are dealt with in more detail by articles on Scythian agriculture, that of the northern Black Sea coast during the existence of the classical Greek colonies, and that of the eastern Slavs in the period down to the fall of Kiev Rus' (about A.D. 1200). A group of articles on farming in Siberia in the seventeenth and eighteenth centuries, that is from the period of extensive Russian colonization, rely almost entirely on written sources.

The first volume also deals with sixteenth-seventeenth-century agriculture in Belorussia, Lithuania, and the Ukraine, and the emergence of some increase in the marketing of grain in the eighteenth century. At this time the efforts to overcome Russia's backwardness, developed especially under Peter the Great, involved an increase in the non-agricultural population and so created some further internal demand for grain. At the same time, in some areas, such as parts of Poland and Volhynia, where it was economically advantageous, some grain went for export, though most of it continued to be consumed locally; for instance, well over half the grain obtained by the gentry was consumed in the form of spirits. The opinions on agricultural policy of eighteenth-century thinkers and writers, such as the physiocrat Volynskii, Tatishchev, who supported the gentry's viewpoint, the mercantilist Pososhkov, and others, are also touched on; the revolutionary developments in other European farming, in fact, found some reflection in Russia, where however serfdom meant that innovations in policy took different forms and had different results from those in western Europe. The publication in this volume of documents about a novel threshing machine invented in 1822 shows that, nevertheless,

individual Russians were not behind in inventiveness.

The second volume, edited by Professor P. M. Zhukovskii after Grekov's death, deals mainly with the history of certain crops in the USSR and obviously owes a great deal to the members of the All-Union Institute of Crops (*VIR*). Professor M. M. Yakubtsiner contributes a lengthy article (the equivalent of about 50,000 words) on wheat in various regions of the USSR. An article by V. S. Lekhnovich of similar length (although the editor excluded four chapters and cut the rest) deals with the potato from its first gradual introduction into Russia mainly through the Baltic seaboard, and its intentional development by the authorities in the 1760's, down to the present. Other crops whose history in the USSR is dealt with are barley, flax, clover, tomatoes, cotton, sub-tropical plants, and tea. The question of the origin of crops in East Siberia also receives attention and one article is devoted to the development of viticulture in seventeenth-century Russia due to the demands of the court.

In both volumes there are gaps which will no doubt be at least partially filled by future issues. Thus, in the foreword to Volume I Professor Grekov mentioned that agriculture in the periods of "feudal dismemberment" (thirteenth and fourteenth centuries) and of the "formation of the centralized Russian state" (fifteenth and sixteenth centuries), as well as that of the various nationalities of the USSR, needed to be dealt with. In the foreword to Volume II Professor Zhukovskii mentions that articles on such important crops as rye, oats, and beet will appear in the next volume and that more attention will be given to the Soviet period of the history of crops. By disclosing such gaps in our knowledge, however, this series is doing a useful service and will help to focus attention where further research is needed.

In a short review of such varied matter it is not possible to make a detailed criticism, but, in general, the *Materials* so far published are uneven in quality, and are less useful to the

historian than they might be. Neither volume has an index. This is a common fault in Soviet books, but in this case it is particularly regrettable owing to the great variety of subject-matter. Moreover, an index would probably have helped to eliminate some duplication of effort by the authors and have enabled some points of difference to be made explicit. The maps are clear; many of the drawings give real pleasure, but few of them indicate the scale. The photographs also for the most part fail to indicate the scale and are so badly reproduced that they add nothing to one's knowledge, but detract from the appearance of an otherwise well-produced book. The system of reporting pre-revolutionary harvest figures in *poods per desyatina* and post-revolutionary figures in *centners per hectare* hinders immediate comparison. These all seem to be technical matters which could quite easily be dealt with. But, in addition, the authors themselves have evidently not been clear whether to supply materials or to write finished essays on their particular subject.

The great wealth and variety of material in these two volumes well illustrate the immensity of the task which Soviet historians have undertaken. It is a promising beginning despite certain faults, but a clearer editorial policy might make future volumes of even greater use and interest.

R. E. F. SMITH

C. S. MARTIN, *Irrigation and Closer Settlement in the Shepparton District, 1836-1906*. Melbourne University Press, 1955. 94 pp. 12s. 6d.

This little study is a posthumous edition of the work of a young research student who was killed in a motor accident in 1946 at the age of twenty-six. The affectionate recollections of his editor and of his university are to be commended. But the book has glaring defects.

Martin was the son of a judge, and the grandson of Swinburne, a prominent nineteenth-century political leader who played an active part in promoting irrigation agriculture in Victoria. He was a history scholar

of Melbourne University, and according to his biographer, a prizewinner in economics *at school*, but he shows no evidence of having studied the subject since. Out of his lack of knowledge of economics, and his desire to do credit to his grandfather, he has produced a book which, while it gives quite an interesting account of the political events associated with the development of irrigation agriculture in Victoria, completely misses the main point. This is that irrigation agriculture in Victoria and elsewhere in Australia, except for very modest projects based on small-scale pumping, is and always has been utterly uneconomic. The large irrigation projects which are now being discussed for Australia are uneconomic to quite a fantastic degree. Irrigation has succeeded in other countries, where the river flows are fed by snow-covered mountain ranges, and where there is a lack of farm land endowed with natural rainfall. In Australia neither of these conditions holds. Australian farmers will not pay water rents that will cover even the maintenance cost, let alone the capital cost of irrigation, for the simple reason that there is plenty of good rainfall land elsewhere. Every irrigation project therefore has had to be continuously sub-

sidized by the taxpayers. This was true even in the nineteenth century, as this book clearly shows.

However, besides seeking to do honour to his grandfather, Martin is concerned with the still more prominent name in Australian history, Deakin. Deakin was mainly responsible for getting irrigation started in Victoria, and every Australian historian treats his actions with unquestioned deference.

The whole study is a sad object-lesson in that destruction of the critical sense which appears to arise from studying economics at school, when a student's mind cannot possibly be mature enough to grasp the reasoning involved, but he nevertheless comes away with a dangerous conviction that he understands economics.

It is however not the author but the Melbourne University Press who are responsible for the statement on the dust cover that this chronic drain of economic resources, which could have been so much better used in the development of other parts of Australia, constitutes "the intelligent use of natural resources."

COLIN CLARK

Letter to the Editor

MR BERESFORD AND MR GOULD

SIR,—Readers might assume from Mr Cooper's letter (IV, p. 121) that the argument of my book rests heavily on Dr Bowden's index of wool prices: they would be surprised to turn to my book and find that only twelve lines (p. 183) are concerned with this index, and that my argument for the profitability of wool at the time of depopulation rests on contemporary statements rather than on modern price-indices whose inadequacies (pp. 177, 183, 184) I bemoaned quite as loudly as Mr Cooper.

Dr Bowden's own thesis (Leeds, 1952) answers some of the questions about the effect of the local cloth industries on the sixteenth-century wool supply which Mr

Cooper poses, and Dr K. J. Allison's recent thesis (Leeds, 1956) will tell him more about wool and animal prices in the region from which the Norwich and Norfolk markets were supplied.

Mr Gould has had to wait some time for my comments on his *Comment* (III, pp. 107-13), but his critique deserves a more constructive context than a further instalment in the "I didn't say what you said I said" vein, and I hope to produce a general survey of the attitude of the State to enclosure during the seventeenth century in which I can touch on Mr Gould's suggestions.

Yours truly,

MAURICE BERESFORD

The University, Leeds.

THE ECONOMIC JOURNAL

No. 264

DECEMBER 1956

VOL. LXVI

I. ARTICLES

How Should We Control Monopoly? I
II
III

The Monopolies Commission and Price Fixing

The Optimum Rate of Saving

Mr Harrod on the British Boom

The Myth of "Fair Wages"

The Supply Factor in Professor Hicks' Theory of the Cycle

The Marginal Efficiency of Capital and Investment Programming

Productivity, Trade Balance and International Structure

II. REVIEWS

III. NOTES AND MEMORANDA

IV. RECENT PERIODICALS AND NEW BOOKS

MACMILLAN & CO. LTD, LONDON, W.C.2

Application for Fellowship to

ROYAL ECONOMIC SOCIETY

21 Bentinck Street, London, W.1

E. A. G. ROBINSON

J. DOWNIE

J. L. MONTROSE

A. HUNTER

J. TINBERGEN

SIR R. HAWTREY

LADY WILLIAMS

J. R. SARGENT

M. D. BROCKIE and

A. L. GREY

F. SETON

SCOTTISH HISTORICAL REVIEW

VOLUME XXXVI, 1 APRIL 1957 NUMBER 121

CONTENTS

ARTICLES

The 'Gowrie Conspiracy' Part 1

Journal of a Traveller in Scotland, 1795-1796

W. F. ARBUCKLE

L. H. BARBER

REVIEWS

James VI and I; Regesta Henrici Primi; Trade Unionism in Aberdeen 1878-1900

SHORT NOTICES

NOTES AND COMMENTS

Jouvin de Rochefort's Account of Scotland; Scottish-German Diplomacy in the early fourteenth century.

annual subscription 15s (two issues), single copies 7s 9d, post free

NELSON

PARKSIDE WORKS, EDINBURGH 9

Ask the Fellows Who Cut the Hay

GEORGE EWART EVANS



A picture of the old Suffolk village of Blaxhall. With 22 plates and engravings by Thomas Bewick

"A serious book about an agricultural community, one of the best of its kind." *ECONOMIST*. "Old domestic crafts, events . . . in the farming year, bell ringing, the village school, field names and what they tell, legends and superstitions: all these come within the author's purview." *EAST ANGLIAN DAILY TIMES*. "A book rare in its perfect simplicity and veracity." *TIMES EDUCATIONAL SUPPLEMENT*. 2s

Faber & Faber

Pioneer in Scientific Agriculture

DANIEL HALL

By H. E. DALE, c.B.

Daniel Hall was one of the most distinguished of the band of pioneers who in the 1890's refused to accept the widespread view that British agriculture was dying or dead. They realized that new systems were required and that science was necessary to make them successful. To this end Sir Daniel devoted his working life.

'A life devoted to agriculture may be the greatest of all lives so dedicated. By any standard, he was a great Englishman.'—*BIRMINGHAM POST*.

With illustrations

21s net

JOHN MURRAY

Build a country bookshelf through

COUNTRY BOOK CLUB

Country Book Club serves those who love the life of the open air, of farm and forest, lake and stream, who are conscious of the heritage of England and who

6/-

MONTHLY EDITIONS

March—August 1957

Programme

PROSPECT OF BRITAIN by ANDREW YOUNG

This 'best guide book to Britain' (John Betjeman) ranges from prehistoric monuments to inns. 20 photographs. March *Hutchinson* 16s.; CBC 6s.

CRISIS COTTAGE by GEOFFREY WILLANS

'About a man who buys an old house and tries to make a living out of the land . . . very funny'—*Sphere*. April *Joseph* 12s. 6d.; CBC 6s.

LAST OF THE CURLEWS by FRED BODSWORTH

The curlews' epic migratory flight from Canada to the southernmost tip of South America. Illustrated. May *Museum* 10s. 6d.; CBC 6s.

SHEEPDOG GLORY by ROY SAUNDERS

The training of a border collie from scrappy pup to stardom—a true and moving account. Illustrated. June *Deutsch* 10s. 6d.; CBC 6s.

A PORCH AT MY DOOR by REX MATTHEWS

Retirement to the country and the fun of converting an old cottage. Illustrated. July *Jenkins* 15s.; CBC 6s.

ROCKALL by JAMES FISHER

The exciting story of the remote islet, its history, plant and animal life, geology—and 1955 landing. August *Bles* 18s.; CBC 6s.

respond to the beauties of nature everywhere. Members receive each month a beautifully-produced, unabridged, bargain-priced edition

of recent country books, chosen by A. G. Street. Among recent past choices have been David Ensor's *30 Acres and a Cow* (15s. for 6s.); George Bourne's *Change in the Village* (10s. 6d. for 6s.); Ludwig Koch's *Memoirs of a Birdman* (16s. for 6s.); and Eric Fitch Daglish's *Seaside Nature Book* (15s. for 6s.)

And there are frequent optional book bargains too—coming soon is Miles Hadfield's *Everyman's Wild Flowers and Trees*. Why not join now? Enrolment form below.



JOIN CBC HERE

To THE COUNTRY BOOK CLUB,

38 William IV Street, London W.C.2 (or to your bookseller)

I will join COUNTRY BOOK CLUB from _____ (month), take six consecutive monthly choices, and give one month's notice if I resign.

☐ U.K. I will pay monthly at 6s. each, plus 9d. postage and packing.

☐ U.K. I enclose £2 0s. 6d. for six monthly books.

☐ OVERSEAS: I enclose £1 19s. 0d. for six monthly books.

Name _____

Address _____

439

OATS: Their Cultivation and use from Ancient Times to the Present Day

by WILLIAM M. FINDLAY, M.B.E., B.Sc., N.D.A.

In this book, which brings together the fruits of the late William Findlay's vast experience in connection with the growing of Scotland's staple cereal crop, every aspect of the subject is dealt with—the preparation of the soil, manuring, the place of the cereal crop in the rotation, the straw and grain yields of various varieties, and, in short, the interaction of every element of weather, soil, exposure, and type of plant upon one another and upon the farming economy as a whole.

21s. net

Published for Aberdeen University

by

OLIVER & BOYD: TWEEDDALE COURT
EDINBURGH 1



CAMBRIDGE BOOKS

English Place-Name Elements, I & II

A. H. SMITH

The English Place-Name Society's Survey of English Place-Names has now covered nearly half the country. These two new volumes (xxv and xxvi), prepared by the Director of the Survey to replace and amplify Sir Allan Mawer's earlier work *The Chief Elements used in English Place-Names*, provide a new dictionary of the elements usually found in English place-names before the fifteenth century. Both volumes have distribution maps. *Each volume 35s. net*

The Draining of the Fens

H. C. DARBY

'For many years it has been a treasured dream among Cambridge geographers and economists that some day the story of the Fens would be written on a sound foundation of thorough documentary and geographical knowledge. This has at last been published by Dr H. C. Darby, who brilliantly combines the functions of geographer, historian and economist.' COUNTRY LIFE. A second edition, corrected and brought up to date, is now available. *35s. net*

CAMBRIDGE UNIVERSITY PRESS

BENTLEY HOUSE, 200 EUSTON ROAD, LONDON, N.W.1

Printed at The Broadwater Press, Welwyn Garden City, Herts

RECENT OXFORD BOOKS

A HISTORY OF TECHNOLOGY

VOLUME II

The Mediterranean Civilization and the Middle Ages
c. 700 B.C. to c. A.D. 1500

EDITED BY

CHARLES SINGER, E. J. HOLMYARD,
A. R. HALL AND TREVOR I. WILLIAMS

Crown 4to, 862 pages, with 44 half-tone
plates and 695 text-figures

£8. 8s. net

THE CORRIDORS OF TIME

VOLUME X: TIMES AND PLACES

By the late H. J. H. PEAKE and H. J. FLEURE

Illustrated 428. net

Volumes I-IX 15s. net each

**THE SHREWSBURY DRAPERS AND THE
WELSH WOOL TRADE
IN THE XVI AND XVII CENTURIES**

BY T. C. MENDENHALL

(*Oxford Historical Series*)

25s. net

**ENGLAND AND THE SALT TRADE IN THE
LATER MIDDLE AGES**

BY A. R. BRIDBURY

21s. net

WEST HIGHLAND SURVEY

An Essay in Human Ecology

EDITED BY F. FRASER DARLING

30s. net

OXFORD UNIVERSITY PRESS

